MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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INTRODUCTION.

The MONTHLY WEATHER REVIEW for February, 1900, is based on reports from about 3,103 stations furnished by paid and voluntary observers, classified as follows: regular stations of the Weather Bureau, 158; West Indian service stations, 12; special river stations, 132; special rainfall stations, 48; voluntary observers of the Weather Bureau, 2,562; Army post hospital reports, 27; United States Life-Saving Service, 9; Southern Pacific Railway Company, 96; Canadian Meteorological Service, 32; Mexican Telegraph Service, 20; Mexican voluntary stations, 7. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Señor A. M. Chaves, Director-General of Mexican Telegraphs; Mr. Maxwell Hall, Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; and Capt. J. E. Craig, Hydrographer, United States Navy.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local meridian is mentioned.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

February, 1900, opened with temperature 20° to 30° below the seasonal average over the greater part of the country east of the Mississippi River. The line of zero temperature reached the Ohio River, and the temperature was 6° and 4° below the freezing point at Mobile, Ala., and Jacksonville, Fla., respectively.

From the 6th to the 9th a severe cold wave overspread practically all districts west of the Allegheny Mountains. During the 7th this cold wave was attended by high winds and heavy snow in the Western and Northwestern States, and in the Rocky Mountain regions as far south as northern New Mexico and northwest Texas, and by heavy frost in the valleys of California. On the 8th and 9th the cold wave covered the central valleys and the Lake region, attended by snow and gales over the western Lake region and the upper Mississippi and lower Ohio valleys, and by freezing temperature to the Texas coast. In the Atlantic coast States this cold wave was not severely felt.

During the 12th and 13th a cold wave advanced over the West and Northwest States, carrying the line of freezing temperature to central Texas, and causing heavy snow in the extreme Western States and the Lake region. On the 14th this cold wave was supplemented by a marked fall in temperature in the extreme Northwest, and from that date until the 18th the crest of this unusually severe cold wave moved southward and eastward to the Gulf and Atlantic coasts, attended on the 16th and 17th by heavy snow in the Middle Atlantic and south New England States, and on the 17th by heavy snow and gales in the north Atlantic States. On the 16th the temperature fell to 24° at Mobile, Ala., to 26° at New Orleans, La., and Galveston, Tex., and to 30° at Corpus Christi, Tex., and the line of zero temperature was traced to southern Illinois, southern Missouri, and southern Kansas. At New Orleans, La., the coldest weather of the winter prevailed from the 16th to 19th. By the morning of the 18th the temperature had fallen to 18° at Jacksonville, to 28° at Tampa, and to 38° at Jupiter, Fla.

From the 23d to 25th a cold wave swept rapidly eastward and southeastward over the Lake region, the Ohio Valley, and the Middle Atlantic and New England States, attended the night of the 23d and during the 24th by high winds and heavy snow in the Lake region; and on the 27th and 28th the weather was very cold over the Lake region and the middle and upper Mississippi Valley.

Ample and timely warnings were sent to all sections visited by these cold waves. In New Mexico the warnings of the 6th prompted precautionary measures which saved a number of human lives and prevented the loss of live stock and perishable produce. In the valleys of California and in southern California special warnings of the heavy frost of the 7th were widely distributed. In the sugar and vegetable growing districts of the middle and west Gulf States thousands of dollars were saved by protective measures which were taken upon the receipt of the warnings of freezing weather. Announce-

ment of the severe cold which reached Florida the night of the 17th was made on the 16th, and on the morning of the 17th this announcement was supplemented by special forecasts and warnings of freezing weather as far south as Tampa, Fla. As a result of these warnings thousands of acres of orange groves were protected either by the system of tents now in use, or by the use of dry heat. As a consequence, nearly all bloom was saved, which means many thousand dollars to the growers. A large acreage of pineapples and vegetables was also protected and saved. Figures furnished by growers show that the value of orange and other citrus trees, pineapples, and vegetables saved aggregate over $500,000.

The month closed with heavy snow from the upper Mississippi Valley over the lower lakes and New York. In New York snow began the night of the 28th and continued until March 1, except in the southeast portion of the State, where heavy rain fell.

Special and timely notifications were given to transportation companies and shippers of the heavy snowfalls of the month, and advantage was taken of the warnings to prepare for the snow and to prevent or reduce interruption to travel.

The night of the 20th a severe windstorm occurred along the east Gulf coast. Notwithstanding the fact that due warning was given of this storm many vessels in the bay at Pensacola, Fla., allowed their tows of timber to remain along side, and the timber was scattered along the beach by the storm.

On the 24th and 25th high winds prevailed over the eastern Gulf and western Cuba. Advisory warnings of these winds were sent as far south as Key West, Fla., on the 23d, and on the morning of the 24th storm signals were ordered on the south Atlantic coast, and agents of vessels bound north from Havana, Cuba, were notified that strong northwest winds would be encountered near the Florida coast. During the 24th vessels were delayed on the southern Florida coasts, and the Morgan Line steamer *Whitney* was disabled on a trip from Key West, Fla., to Havana, Cuba.

From the 10th to the 15th a rapid rise occurred in the rivers and streams of the east Gulf and South Atlantic States, and about the middle of the month destructive floods occurred in eastern New York and New England.

CHICAGO FORECAST DISTRICT.

The month was marked by decided changes in temperature and by the movement of three cold waves. The first two swept the entire district, but the influence of the third was not felt in the Rocky Mountain region. Cold-wave signals were ordered up at every station from twenty-four to thirty-six hours in advance of the movement of these cold waves, and all interests had an ample opportunity to prepare for these severe conditions.

On the evening of the 3d snow warnings were distributed to the observers and transfer companies in northern portions of Illinois and Indiana and the southern half of Lower Michigan. The month closed with heavy snow in the lower Missouri and upper Mississippi valleys and the southwestern lake region. A high northeast wind piled the snow into huge drifts making transportation most difficult. Ample warnings for heavy snow were thoroughly distributed in the districts named, and had it not been for the advices serious blockades would have resulted on many of the railroads. The greatest 24-hour snowfall ever recorded was reported at many of the stations during the storm.

The fact that no casualties occurred on Lake Michigan during the month is undoubtedly due to the ample warnings which were issued in advance of all storms.—*H. J. Cox, Professor.*

SAN FRANCISCO FORECAST DISTRICT.

The month, as a whole, was unusually dry and there were but few storms of marked importance.

Frost occurred on February 6 generally throughout the valleys; but little damage was reported. Warnings of frost, severe in exposed places, were issued on the 7th for California and Arizona.

A special forecast from Washington, D. C., stated that severe cold and high northerly winds would prevail in Arizona and southern California. These warnings were for the most part verified. Heavy frosts occurred generally in the valleys of California. In Arizona the temperature fell to 40° at Phenix and no damage was reported. High northerly winds prevailed both in the Sacramento and San Joaquin valleys and in southern California.—*Alexander G. McAdie, Forecast Official.*

PORTLAND, OREG., FORECAST DISTRICT.

The storms of the month moved in high latitudes over British Columbia, as a rule, and passed eastward with great rapidity. One of these on the night of the 5–6th caused gales over lower Puget Sound, which did some damage to wharfs.

Heavy rains and warm weather caused a rapid rise in the river, beginning on the 22d, and on the 24th it reached a stage of 10.4 feet. Forecasts were issued from the 22d to the 25th, which were timely and accurate.—*G. N. Salisbury, Section Director.*

HAVANA FORECAST DISTRICT.

No severe storms occurred in the West Indies during ihe month. On a number of dates strong winds attended the passage of storms over the southeastern part of the United States, and the cold wave which overspread Florida about the middle of the month caused a very appreciable fall in temperature in Cuba.—*W. B. Stockman, Forecast Official.*

AREAS OF HIGH AND LOW PRESSURE.

During the month of February twelve highs and thirteen lows moved across the country in paths sufficiently well defined to admit of charting. Their directions of movement and some of their principal characteristics were as follows: (See Charts Nos. I and II.)

Highs.—Eight of the twelve highs originated either in the western Saskatchewan Valley or in northern Alberta. No. I moved southeastward to the Virginia coast in two and one-half days. No. II took the same course, although at lesser speed, as far as Iowa, where it dissipated. No. III moved to eastern Wisconsin, where it was joined by another section which had moved in from northern Nevada; the combined crest then turned northward to Lake Superior, and from thence moved eastward to the Newfoundland coast. On the morning of the 9th there was a high over the north Pacific coast, which remained there until the morning of the 12th, when it moved over into Alberta. It then gradually overspread the British Northwest, the crest remaining generally over Alberta until the night of the 15th, when it moved southward, Helena, Mont., on the morning of the 16th, reporting the abnormally high reading of 31.12 inches. It continued after this time with steadily decreasing intensity almost due southward to southern Texas, and thence eastward across the Florida Peninsula. This high is charted as No. V. No. VI, after an irregular course to Lake Superior, turned sharply to the southward, and disappeared off the North Carolina

coast. No. VII moved very slowly, and became lost in western Minnesota in two and one-half days. No. XI closely imitated No. VI until the District of Columbia was reached, when it turned to the northeastward, and moved off the Newfoundland coast, after occupying seven days in its transit. No. XII moved down to northeastern South Dakota, and thence northeastward to Lake Superior where it was last seen.

Of the remaining four highs, No. IV moved from central Iowa to the Virginia coast in twenty-four hours; No. VIII originated over Lake Superior, and moved out by way of St. Johns, N. F.; No. IX originated in the Texas panhandle, moved to southern Louisiana, and thence northeastward to central Alabama, where it dissipated, and No. X moved along the entire Pacific coast from south to north.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	3, a. m.	53	109	5, p. m.	37	76	2,150	2.5	860	35.8
II	4, a. m.	54	114	6, a. m.	42	93	1,375	2.0	688	28.6
III*	6, p. m.	54	114	11, a. m.	46	60	2,925	4.5	650	27.1
	7, a. m.	41	118				3,350	4.0	838	34.9
IV	13, p. m.	42	93	14, p. m.	37	76	1,025	1.0	1,025	42.7
V	15, p. m.	50	110	20, a. m.	27	80	3,025	4.5	672	28.0
VI	17, a. m.	53	109	20, p. m.	34	76	2,650	3.5	757	31.5
VII	18, p. m.	54	114	21, a. m.	47	97	1,050	2.5	420	17.5
VIII	21, a. m.	48	85	23, a. m.	48	54	1,575	2.0	788	32.8
IX	21, p. m	36	101	23, a. m.	32	87	1,075	1.5	717	29.9
X	20, a. m.	34	119	23, a. m.	48	124	1,200	3.0	400	16.7
XI	22, p. m.	54	114	†1, p. m.	46	60	3,515	7.0	503	20.9
XII	27, a. m.	53	109	28, p. m.	48	85	1,400	1.5	933	38.9
Sums							26,215	39.5	9,201	383.3
Mean of 13 paths							2,017		708	29.5
Mean of 39.5 days									664	27.7
Low areas.										
I	2, p m	44	100	7, a. m.	48	54	3,140	4.5	698	29.1
II	4, p. m.	44	100	5, a. m.	35	98	650	0.5	1,300	54.2
III*	5, a. m.	53	121	8, noon.	47	84	3,075	3.2	961	40.0
	6, p. m.	33	115				2,050	1.7	1,206	50.2
IV	8, a. m.	47	123	11, p. m.	48	87	2,350	3.5	671	28.0
V	11, a. m.	44	103	14, a. m.	47	65	2,750	3.0	917	38.2
VI	13, p. m.	38	109	16, a. m.	46	60	3,325	2.5	1,330	55.4
VII	15, a. m.	27	86	18, p. m.	46	60	2,080	2.5	832	34.7
VIII*	18, a. m.	50	110	24, a. m.	46	60	3,875	6.0	646	26.9
	18, p. m.	41	118				3,625	5.5	659	27.5
IX	19, p. m.	48	122	23, a. m.	48	89	1,850	3.5	529	22.0
X	22, p. m.	33	104	25, p. m.	48	68	2,700	3.0	900	37.5
XI	24, a. m.	51	114	25, p. m.	32	99	1,550	1.5	1,033	43.0
XII	26, a. m.	38	113	†2, p. m.	47	71	3,285	4.5	730	30.4
XIII	28, a m.	53	121	†1, p. m.	45	93	1,500	1.5	1,000	41.7
Sums							37,805	46.9	13,412	558.8
Mean of 15 paths							2,520		894	37.3
Mean of 46.9 days									806	33.6

*Considered as two in totals and means. †March.

Lows.—Nos. I, II, and V originated in South Dakota. No. II disappeared in Oklahoma after twelve hours rapid movement. No. I, after moving southward to western Kansas, turned almost due eastward to the District of Columbia, and thence northeastward to St. Johns, N. F. No. V moved southward to Oklahoma by way of eastern Colorado, and thence generally northeastward through the St. Lawrence Valley. No. VII evidently originated in central Gulf of Mexico; moved by way of central Georgia to the North Carolina coast, and thence along the Atlantic coast to Cape Breton Island, where it passed into the ocean. This storm steadily increased in energy as it advanced, and when last reported the barometer reading was 28.98 inches.

The remaining nine lows were first noted west of the Rocky Mountains, and six of them passed over the northern portion of the southern slope. No. III began as two widely separated depressions; one was first observed in southwestern Arizona, moved eastward to Oklahoma, where it was joined by the other section, which had moved in from the British Province of Columbia, through Montana to eastern Nebraska, and thence southward to Oklahoma; the combined low then moved northeastward over eastern Lake Superior. No. IV first appeared on the north Pacific coast, moved northward to Columbia, and thence eastward, being last observed north of Lake Superior. No. VI had its origin in western Colorado, moved southeastward to northern Texas, and thence northeastward over the lower Lakes to northern New Brunswick, where it turned eastward to the ocean. This low was not well defined, and the original depression remained in the middle Plateau until its offshoot had disappeared off the Cape Breton coast. No. VIII originated in northern Nevada, and followed in almost the same path traversed by No. VI, except that it turned eastward to the ocean after reaching the lower Lake region. No. IX followed almost exactly in the path of No. IV, while No. X began in southeastern New Mexico and, after sending an offshoot to the north Texas coast, continued eastward to the middle Atlantic coast, where it turned northward, developing into the severest storm of the month. It disappeared north of New Brunswick with a final barometer reading of 28.56 inches. No. XI originated in Alberta, and moved south-southeastward to central Texas, where it dissipated. No. XII originated in southwestern Utah and passed out over the Province of Quebec by way of northern Texas, the lower Ohio Valley, and the middle Atlantic coast. No. XIII was first observed in Columbia, moved eastward to Manitoba, and thence southeastward to southeastern Minnesota, where it disappeared.—*H. C. Frankenfield, Forecast Official.*

RIVERS AND FLOODS.

The Mississippi River remained practically frozen over during the month as far south as the mouth of the Des Moines River. The ice broke up at Hannibal, Mo., on the morning of the 8th and moved out. Below Hannibal, Mo., there was more or less floating ice during the entire month to below the mouth of the Ohio River, and from Chester, Ill., to Cairo, Ill., it was heaviest during the closing days of the month. Back of Cairo, Ill., the ice in the Mississippi was gorged from the 19th until the afternoon of the 23d, with the exception of a few hours on the 21st. On account of the ice, navigation from St. Louis, Mo., to Cairo, Ill., was very intermittent during the month.

The water stages were higher than in January, 1900, particularly below the mouth of the Ohio, where the average increase ranged from 8 to 10 feet, except at New Orleans, La., where it was only 2.5 feet. The river fell steadily during the first part of the month, but rose rapidly after the rise from the Ohio reached Cairo, Ill., on the 8th.

The Missouri remained frozen to below Omaha, Nebr. Below the mouth of the Platte River there was a little more water than in January, and there was more or less ice during almost the entire month. The river was blocked at Boonville, Mo., except on the 8th. At Hermann, Mo., attempts were made at various times to resume navigation, but without success.

The Des Moines River was also frozen over during the entire month, while the Illinois remained open and rose steadily, reaching the danger line for points below Peoria, Ill., on the 25th, and continuing to rise thereafter.

The extreme upper tributaries of the Ohio were frozen during the earlier days of the month, and the water stages were not worthy of special note. A decided rise set in at Pittsburg, Pa., on the 8th, reaching its crest on the 10th. It passed Parkersburg, W. Va., on the 11th, Cincinnati, Ohio, and Louisville, Ky., on the 17th; Evansville, Ind., on the 18th, and Cairo, Ill., on the 21st. The stages were not at all

high, however. On the whole there was from 5 to 8 feet more water than during January.

In the Tennessee River there was some ice during the first few days of the month above Chattanooga, Tenn., causing a suspension of navigation until the 5th. Heavy rains on the 12th and 13th caused a rapid and decided rise, amounting to over 15 feet at Chattanooga in three days. The fall was almost equally rapid. During the rise about 5,000,000 feet of logs were rafted from the upper river to Chattanooga, Tenn. The Cumberland River rose at the same time, but no flood stages were reached except at Johnsonville, Tenn., on the Tennessee River, on the 19th and 20th. No damage was reported.

In the Hudson River the water reached its highest point since 1857 on account of the ice gorges which prevailed from January 17 to February 14. The following description of this flood was extracted from the special report thereon by Mr. A. F. Sims, Official in Charge of the Weather Bureau office at Albany, N. Y.

The ice broke up in the Hudson River on the morning of January 17, moved southward, and passing under the ice near Roaras Hook jammed in the narrow space near Baeren Island.

The ice from the Upper Hudson moved down to the gorge, and the jam was thus extended to Van Wie's Point. With the coming of high water on February 12, 13, and 14, the gorge began to rise slowly at Coeymans, N. Y. As it rose the ice that was held behind it was forced under by the current and was wedged in tightly. When the ice from the Hoosick, Mohawk, and Upper Hudson moved down, the jam at Van Wie's Point held it for a while and a temporary gorge was formed there. When a higher stage of water was reached the Coeymans gorge started to rise. The ice gorge at Van Wie's Point and the jams at Castleton and Cedarhill, N. Y., moved southward one-half mile, rendering the dam more effectual and sending the Hudson River, at Albany, N. Y., up to 19.96 feet above mean low water. About one mile below the gorge men continued to cut and harvest 12-inch ice.

The damage to property between Schenectady and Coeymans, N. Y., was $174,700.

The number of lives lost, 3.

The principal loss by the flood was suffered by the poor residents of the lower section of this city. Very little movable property was damaged.

On February 14, seven hours prior to the breaking up of the ice in this city, the two engineers in charge of bridge construction, representatives of the American Ice Company, New Jersey Ice Company, Yonkers Ice Company, and leading merchants of this city, met in the Weather Bureau Office. I placed the facts before them and stated that the ice would break up by 5 p. m. In reply to questions propounded by the engineers, I stated that their false work under the draw span would not withstand the pressure of the ice, advised them to remove their tools and materials and keep their men off the bridge span as soon as they removed all portable articles. They followed the advice given and several days afterward the engineers told me that they did not have even as much as a hammer on the draw span when the east side of the draw was carried away.

We answered 300 calls on the telephone and had 400 visitors during February 14.

Many thousand dollars worth of perishable merchandise and property was saved by the timely warnings and forecasts of the Weather Bureau. The press of this section has been most liberal in its praise of the service, and we have the thanks of a grateful community.

Conditions in the Susquehanna River did not change materially during the month. There was ice the greater portion of the time, and on the 9th its breaking up at Wilkesbarre, Pa., caused a temporary rise of over 9 feet to the danger line of 14 feet.

At the same time that the Hudson River flood was in progress there were severe and disastrous floods in New England and the South Atlantic and east Gulf States, due to heavy and warm rains. In New England they were particularly disastrous, covering the main streets in many of the cities with from 1 to 3 feet of water. No accurate estimate of the damage done has been received, but it was evidently over $1,000,000.

The rivers of the South Atlantic States were high about the middle of the month, and rose above the flood lines in South Carolina and Georgia. Warnings of these stages were issued generally, but much damage occurred that could not have been prevented. The Savannah River at Augusta, Ga., reached the danger line on the 14th, and flooded some low streets and yards. It also interfered somewhat with the working of some of the mills. Chattahooche, Flint, and Ocmulgee rivers were very high, especially the former. About $25,000 worth of bridges were carried away on this river north of Columbus, Ga., and 3,000 mill hands at Columbus were idle for a week on account of damage done to the machinery by the rising waters.

Many thousand acres of farm lands were also inundated, but, apart from the temporary inconvenience, this was rather advantageous than otherwise on account of the improved condition of the soil which resulted therefrom.

The rivers of Alabama were also high at the same time and for the same reason. At Montgomery, Ala., the Alabama River reached a stage of 48.6 feet on the 15th, or 13.6 feet above the danger line, and similar conditions prevailed at Selma, Ala., also at Demopolis, Ala., on the Tombigbee River, and at Tuscaloosa, Ala., on the Black Warrior River. Timely and accurate warnings of this flood were given by the officials in charge of the Weather Bureau offices at Montgomery and Mobile, Ala. They were reinforced by supplementary warnings from time to time, and were the subjects of much commendation from the public press and others interested. The following description of the flood in the rivers of central and eastern Alabama is from the special report of Mr. F. P. Chaffee, in charge of the Weather Bureau office at Montgomery, Ala.:

Moderate rains fell over this region on the 10th instant, and, anticipating general and heavy rains on the following night, special reports were called for from all the river stations of this section for Sunday morning (the 11th); these reports showing the rainfall to be quite heavy in the middle portions of the State, a special bulletin was issued that forenoon for probable rapid rises in the rivers from Wetumpka to Selma, Ala., and for a rapid though not dangerous rise at Rome, Ga.; these bulletins were given local distribution and the information telephoned or telegraphed the Weather Bureau office at Mobile, Ala., and river observers at points threatened. General and heavy rains continued over the middle portion of the State through the night of the 11th–12th, the rainfall exceeding 2 inches at Montgomery, Tallassee, and Wetumpka, Ala., and being less over the upper portions of the watershed. Warnings were issued for a rapid but not dangerous rise in the Upper Coosa and for high stages in the Lower Coosa and Alabama during the next two days. The 3 p. m. reports of the 12th, showing the heavy rains as spreading northward to the upper watersheds, additional warnings were issued that evening saying the river would go nearly to danger line at Rome, Ga.; for moderate flood stages at Gadsden and Lock No. 4, Ala. (Lincoln), and for dangerous stages at Montgomery and Selma, Ala., by the morning of the 14th, and advising that stock and other property liable to damage should be moved from lands subject to overflow at 30 feet between Wetumpka and 100 miles south of Selma, Ala. Morning reports of the 13th, showing the rainfall as excessive over the northern and middle portions of our watershed, exceeding 3 inches in twenty-four hours at several places, and that the rainfall from the 10th to the morning of the 13th ranged from 3½ to above 6 inches over the entire watershed, additional warnings were issued for continued and slightly higher though moderate flood stages from Gadsden, Ala., south, for a stage of 48 feet at Selma and Wetumpka, Ala., and that a 45-foot stage might be expected at Montgomery, Ala., by the morning of the 15th; it was also advised that stock and other movable property liable to damage should at once be moved from lands subject to overflow at 45 feet between Wetumpka and 100 miles below Selma, Ala.

Reports were called for twice daily from all stations up to and including the 14th, and specials from Wetumpka and Selma, Ala., during the afternoon of the 15th.

The upper rivers rose steadily until the evening of the 14th, the rise continuing through the 15th as far south as Montgomery, Ala., the flood crest passing Selma, Ala., during the night of the 16–17th. The warnings were verified almost to the exact stages forecasted, except at Rome, Ga., where it did not go quite to the danger line. The danger line was exceeded by 3.6 feet at Gadsden, Ala., and by 0.5 foot at Lock No. 4, Ala., while at Wetumpka, Ala., 48.2 feet was the highest (48 feet being forecasted); at Montgomery, Ala., 48.6 feet was the highest (over 45 feet forecasted, and to inquiries by telephone information given that about 48 or 49 feet would be the highest reached), and at Selma, Ala., 48 feet (48 feet forecasted).

Special bulletins were issued every afternoon while the waters were rising. All the warnings were well in advance of the rise, and were

very widely distributed by telephone, telegraph, and mail, and through the press, and special effort was made to keep the different railroads centering here, whose property was threatened, fully warned as to the progress of the flood. Several of the railroads, on the strength of the warnings, had repair trains in readiness to protect weak places in roadbeds and embankments, and thus escaped damage and avoided delay in traffic which would have been costly. The warnings were well heeded by all classes, and the value of live stock and other property which was moved from the threatened district, and which might have been lost, would, it is conservatively estimated, reach, if not exceed $300,000. About seventy-five families residing in the low grounds of the northern suburbs of Montgomery, Ala., which were flooded, moved their household effects before the water reached them, while others, on slightly higher ground, were saved the expense of moving by the assurance given from this office that they were safe.

One farmer who had about four hundred tons of hay stored in a barn, which would be reached at a stage of 52 feet, was saved the expense of moving it by information contained in our warnings. The value of the warnings to the railroads can not be estimated, but it was certainly great.

The Manager of the Southern Bell Telephone Company at this place by request of this office, cheerfully cooperated in distributing the warnings, free of charge, to all river towns reached by their lines and by connecting lines of the American Bell Telephone Company, thus giving the information a wider distribution than could have otherwise been obtained.

This flood was the highest that has occurred in the Lower Coosa and Alabama since 1892. The damage reported from the flood is mostly of a minor nature, and such as could not have been averted.

Nothing of special interest transpired along the rivers of the Pacific coast.

The highest and lowest water, mean stage, and monthly range at 127 river stations are given in Table XI. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are: Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

The thickness of ice in the rivers since December 4, 1899, is given in the following table. Although there was a considerable increase in the amount of the ice during February, the culmination of the winter season, yet there were about 6 inches less than during February, 1899, indicating, as was the fact, a much milder condition of affairs as far as the temperature is concerned. This statement applies also to the entire winter, and can readily be traced from week to week through the ice tables.—*H. C. Frankenfield, Forecast Official.*

Thickness of ice in rivers (in inches), winter of 1899–1900.

Stations.	December.				January.					February.				March.			
	4	11	18	25	1	8	15	22	29	5	12	19	26	5	12	19	26
Moorhead, Minn	.....	.....	.....	.....	12.0	19.0	21.0	24.0	26.0	30.0	32.0	36.0	36.5	.....	.....	.....	.....
Williston, N. Dak	1.0	1.5	6.0	8.0	16.0	16.0	16.0	.....	21.0	24.0	26.0	27.5	29.5	.....	.....	.....	.....
Bismarck, N. Dak	.....	.....	1.5	9.0	16.0	17.0	17.0	15.0	17.0	17.0	22.0	25.0	26.0	.....	.....	.....	.....
Pierre, S. Dak	.....	.....	1.5	3.5	14.0	15.0	10.5	8.0	14.0	15.5	16.0	21.0	20.0	.....	.....	.....	.....
Yankton, S. Dak	.....	.....	5.0	7.0	10.0	11.0	10.5	8.5	10.0	11.5	14.5	15.5	20.0	.....	.....	.....	.....
Sioux City, Iowa	.....	.....	.....	1.5	10.0	8.0	6.0	.....	.....	.....	14.0	16.0	18.0	.....	.....	.....	.....
Omaha, Nebr	.....	.....	.....	.....	10.0	.....	.....	.....	.....	6.0	12.0	15.0	17.0	.....	.....	.....	.....
St. Paul, Minn	.....	.....	.....	.....	12.5	.....	20.0	16.0	18.0	20.0	22.0	23.0	24.0	.....	.....	.....	.....
La Crosse, Wis	.....	.....	.....	5.0	10.0	9.0	7.5	6.0	9.0	11.5	10.5	14.0	14.0	.....	.....	.....	.....
Dubuque, Iowa	.....	.....	4.0	5.0	12.0	10.5	10.0	.....	.....	11.0	11.0	14.0	16.0	.....	.....	.....	.....
Davenport, Iowa	.....	.....	.....	.....	8.0	9.0	6.0	.....	.....	10.0	10.0	15.0	17.0	.....	.....	.....	.....
Keokuk, Iowa	.....	.....	.....	.....	10.0	.....	5.0	.....	.....	8.0	0.0	12.0	11.0	.....	.....	.....	.....
Hannibal, Mo	.....	.....	.....	.....	8.0	.....	.....	.....	.....	4.0	0.0	.....	.....	.....	.....	.....	.....
Topeka, Kans	.....	.....	.....	.....	6.5	.....	.....	.....	.....	.....	.....	2.0	3.0	.....	.....	.....	.....
Wichita, Kans	.....	.....	.....	.....	2.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pittsburg, Pa	.....	.....	.....	.....	4.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Parkersburg, W. Va	.....	.....	.....	.....	1.0	2.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Louisville, Ky	.....	.....	.....	.....	5.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Columbus, Ohio	.....	.....	.....	.....	7.0	1.0	.....	.....	3.0	0.5	.....	0.5	1.0	.....	.....	.....	.....
New Brunswick, N. J	.....	.....	.....	.....	.....	6.0	.....	.....	2.5	.....	.....	.....	.....	.....	.....	.....	.....
Bangor, Me	.....	.....	2.0	2.0	4.5	8.0	9.0	12.0	14.0	14.0	17.0	17.0	16.0	.....	.....	.....	.....
Albany, N. Y	.....	.....	.....	.....	4.0	5.0	8.5	.....	2.5	8.0	7.5	2.0	4.0	.....	.....	.....	.....
Harrisburg, Pa	.....	.....	.....	.....	.....	3.0	3.0	.....	.....	4.0	.....	.....	.....	.....	.....	.....	.....
Philadelphia, Pa	.....	.....	.....	.....	2.0	2.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington, D. C	.....	.....	.....	.....	5.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lynchburg, Va	.....	.....	.....	.....	4.0	2.0	.....	.....	.....	.....	.....	0.5	.....	.....	.....	.....	.....

CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective sections of the Climate and Crop Service. The name of the section director is given after each summary.

Rainfall is expressed in inches.

Alabama.—The mean temperature was 43.8°, or about 2.5° below normal; the highest was 82°, at Wetumpka on the 8th, and the lowest, 6°, at Riverton and Valleyhead on the 17th. The average precipitation was 8.01, or about 3.00 above normal; the greatest monthly amount, 17.60, occurred at Union Springs, and the least, 3.88, at Florence.

Farm work very much retarded by excessive rains, which also caused nearly all rivers to overflow. Oats considerably damaged by the cold wave of the 17–18th, but fruit was not sufficiently advanced as to be injured.—*F. P. Chaffee.*

Arizona.—The mean temperature was 49.9°, or 0.6° above normal; the highest was 90°, at Arivaca on the 25th and 28th, and the lowest, zero, at Snowflake on the 11th. The average precipitation was 0.39, or 0.50 below normal; the greatest monthly amount, 1.93, occurred at Mount Huachuca, while none fell at a number of stations.—*W. G. Burns.*

Arkansas.—The mean temperature was 39.5°, or 3.5° below normal; the highest was 74°, at Dallas, Elon, and Newport on the 8th, and the lowest, 5° below zero, at Winslow on the 17th. The average precipitation was 5.06, or 1.03 above normal; the greatest monthly amount, 7.70, occurred at Brinkley, and the least, 2.40, at Silversprings.

Owing to decided temperature changes during the month wheat has been damaged to a considerable extent in many sections, while in others there was sufficient protection afforded by snow. On the whole, however, reports show the condition of wheat to be above the average for this time of year. In some sections land is being prepared for corn, but as a rule the conditions of weather and soil have not been favorable for farm work.—*E. B. Richards.*

California.—The mean temperature for the State, obtained by weighting the reports from 188 stations, so that equal areas have about the same weight, was 49.9°, which was 2.1° above the February normal for the State, as determined from 155 records; the highest recorded temperature was 95°, at Elsinore, San Diego County, on the 28th, and at Ogilby, San Diego County, on the 14th and 25th; the lowest was 9° below zero, at Bodie, Mono County, on the 6th. The average precipitation for the State, as determined by the records of 188 stations, was 0.94; the deficiency, as indicated by reports from 155 stations, which have normals, was 2.30; the greatest monthly amount, 12.86, at Crescent City, Del Norte County, while none fell at many stations.—*Alexander G. McAdie.*

Colorado.—The mean temperature was 27.0°, or 1.3° above normal; the highest was 70°, at Lamar and Trinidad on the 22d, and the lowest, 32° below zero, at Walden on the 17th. The average precipitation was 0.84, or 0.14 below normal; the greatest monthly amount,

3.31, occurred at Marshall, and the least, 0.06, at Garnett and Saguache. —*F. H. Brandenburg.*

Florida.—The mean temperature was 58.5°, or 1.9 below normal; the highest was 88°, at Eustis on the 10th, and at Nocatee on the 10th, 12th, and 13th, and the lowest, 16°, at Middleburg on the 2d, and Jasper, Lake City, and De Funiak Springs on the 18th. The average precipitation was 4.42, or 0.6 above normal; the greatest monthly amount, 12.55, occurred at De Funiak Springs, and the least, 1.34, at Key West.

The cold wave on the 18th and 19th did severe damage to the vegetable crop over the northern and central portions of the State. Over the same section tender citrus growth was killed or badly damaged. The bulk of the vegetable crop in southern counties escaped, and citrus trees over the same section sustained no serious effects, although freezing weather prevailed as far south as the southern section of Dade County. Orange trees are laden with bloom, and some corn and melons seeded. Farm work, however, is several weeks behind.—*A. J. Mitchell.*

Georgia.—The mean temperature was 44.8°, or 3.5° below normal; the highest was 81°, at Jesup on the 8th, and the lowest, zero, at Dahlonega on the 18th. The average precipitation was 7.96, or 3.17 above normal; the greatest monthly amount, 13.64, occurred at Fort Gaines, and the least, 2.60, at Savannah.

The weather of the month was unseasonable for farm operations, which are in a backward state. The severe cold of the 17th and 18th served to check the premature advance of budding of fruit trees. The oat crop apparently sustained the greatest damage, while wheat is reported in excellent condition.—*J. B. Marbury.*

Idaho.—The mean temperature was 28.4°, or 0.8° above normal; the highest was 76°, at Idaho City on the 25th, and the lowest, 29° below zero, at Marysville on the 15th. The average precipitation was 1.47, or 0.10 below normal; the greatest monthly amount, 3.80, occurred at Murray, and the least, 0.15, at Lost River.—*S. M. Blandford.*

Illinois.—The mean temperature was 23.8°, or 4.2° below normal; the highest was 70°, at Cairo and Equality on the 8th, and the lowest, 19° below zero, at Lanark on the 16th. The average precipitation was 3.91. or 1.36 above normal; the greatest monthly amount, 6.99, occurred at Astoria, and the least, 18.6, at Dixon.

Winter wheat is generally reported in good condition; conflicting reports are received in regard to grass; fruit in the southern half of the State is thought to be unharmed; the month has not been favorable for farm work and little has been done.—*C. E. Linney.*

Indiana.—The mean temperature was 26.5°, or 3.8° below normal; the highest was 69°, at Edwardsville and Evansville on the 8th, and the lowest, 13° below zero, at Fairmount on the 17th. The average precipitation was 3.77, or 0.46 above normal; the greatest monthly amount, 5.70, occurred at Marengo, and the least, 2.22, at Washington.

Frequent, great, and sudden changes in temperature, from warmer to the lowest temperature during this winter, freezing and thawing, and but little or no snow covering, in many localities when most needed, have injured the wheat, and, in general, most fields look brown, but, apparently, in some fields the roots are still vigorous and healthy. In the southern portion the condition of the wheat seems to be better than in the northern portion, as there are quite a number of very good green fields. The wheat in some fields will be plowed up, and corn, oats, or other grain will be sown. Grass is in good condition. Young clover stands well. Timothy is sown and in good condition. Fruit buds are apparently safe. In a few localities it is feared that peach and cherry buds have been killed by the extremely low temperature of the 25th. Livestock is in good condition. But little farm work could be done during the month. Maple molasses was made in the latter part of the month in many localities.—*C. F. R. Wappenhans.*

Iowa.—The mean temperature was 14.8°, or 6.9° below normal; the highest was 60°, at Keokuk on the 7th, and the lowest, 27° below zero, at Denison on the 15th. The average precipitation was 1.30, or 0.24 above normal; the greatest monthly amount, 4.57, occurred at Danville, and the least, 0.18, at Griswold—*J. R. Sage, Director; G. M. Chappel, Assistant.*

Kansas.—The mean temperature was 27.9°, or 2.5 below normal; the highest was 70°, at Ulysses on the 4th, at Chanute and Englewood on the 6th, and at Emporia on the 7th; the lowest was 13 below zero, at Yates Center on the 17th. The average precipitation was 1.78, or 0.70 above normal; the greatest monthly amount, 3.79, occurred at Wamego, and the least, 0.25, at Winona.

Wheat continued in good condition, and the ground was moist through the month; more spring plowing was done than usual for the season in the southeastern counties, while elsewhere the ground was frozen.—*T. B. Jennings.*

Kentucky.—The mean temperature was 32.5°, or about 3° below normal; the highest was 76°, at Catlettsburg on the 8th, and the lowest, 9° below zero, at Hopkinsville on the 17th and at Marrowbone on the 18th. The average precipitation was 4.68, or 0.84 above normal; the greatest monthly amount, 6.88, occurred at Hopkinsville, and the least, 2.45, at Vanceburg.

The outlook for the wheat crop, as a whole, is very satisfactory, and other crops are reported to be in good condition.—*H. B. Hersey.*

Louisiana.—The mean temperature was 50.1°, or 2.7° below normal; the highest was 82°, at Opelousas on the 28th, and the lowest, 11°, at Como on the 16th and 17th, at Farmerville on the 16th, and at Oxford on the 18th. The average precipitation was 6.48, or 1.77 above normal; the greatest monthly amount, 12.60, occurred at Amite, and the least, 3.11, at Minden.—*W. T. Blythe.*

Maryland and Delaware.—The mean temperature was 33.5°, or 1.4° below normal; the highest was 72°, at Deerpark, Md., and Sunnyside, Md., on the 8th, and the lowest, 15° below zero, at Deerpark, Md., and Sunnyside, Md., on the 27th. The average precipitation was 4.66, or 1.14 above normal; the greatest monthly amount, 8.22, occurred at Bachmans Valley, Md., and the least, 2.28, at Cumberland, Md.—*F. J. Walz.*

Michigan.—The mean temperature was 16.6°, or 4.0° below normal; the highest was 65°, at Eloise and Grape on the 8th, and the lowest, 38° below zero, at Thomaston on the 25th, and at Humboldt and Sidnaw on the 26th. The average precipitation was 3.18, or 1.42 above normal; the greatest monthly amount, 8.00, occurred at Berrien Springs, and the least, 0.44, at Humboldt.

The average precipitation is the greatest ever recorded during any February since 1888, when State records were begun. Snow fell in greater quantities in the lower peninsula, and particularly in the southern counties, than ever before recorded. The normal or average February snowfall in the southern counties is 9.2 inches, and the greatest record previous to February, 1900, is 16.7 inches, in 1898; this year an average of 25.8 inches fell in February, most of which occurred during the last decade of the month. In the upper peninsula the snowfall was comparatively light, being 16.6 inches compared with the normal of 18.3 inches.—*C. F. Schneider.*

Minnesota.—The mean temperature was 5.2°, or 5.5° below normal; the highest was 47°, at Lynd on the 22d, and the lowest, 42° below zero, at Tower on the 26th. The average precipitation was 0.56, or 0.20 below normal; the greatest monthly amount, 1.33, occurred at Wabasha.—*T. S. Outram.*

Missouri.—The mean temperature was 26 2°, or 5.1° below normal; the highest was 70°, at Poplarbluff on the 8th, and the lowest, 16° below zero, at Windsor on the 17th. The average precipitation was 3.98, or 1.79 above normal; the greatest monthly amount, 7.13, occurred at Potosi, and the least, 1.10, at Mount Vernon.

The snowfall of the month exceeded the usual amount over the greater portion of the State, and over portions of the central and northeast sections, and a few of the west-central and northwestern counties the fall was exceptionally heavy ranging from 20 to over 35 inches. In most of the northern and western counties winter wheat was fairly well protected by snow during the cold spells, and suffered little or no injury from freezing, but in portions of the eastern and southern sections the fields were bare and more or less damage was reported. In general, however, the crop continued in good condition. In many of the southern counties from one-half to three-fourths of the peach buds were reported killed by the low temperatures during the month, and in some localities it was believed that they were all dead. Early varieties of plums and cherries were also injured. In the central and northern counties considerable damage to peaches was reported in some localities, but in general fruit buds of all kinds escaped serious injury.—*A. E. Hackett.*

Montana.—The mean temperature was 20.1°, or 1.1 below normal; the highest was 64°, at Corvallis on the 25th, and the lowest, 43° below zero, at Adel on the 15th. The average precipitation was 0.74, or nearly normal; the greatest monthly amount, 2.24, occurred at Ovando, and the least, 0.13, at Deerlodge.—*E. J. Glass.*

Nebraska.—The mean temperature was 20.8°, or 3.4° below normal; the highest was 68°, at Benkelman on the 22d, and the lowest, 29° below zero, at Norfolk on the 15th. The average precipitation was 1.07, or 0.39 above normal; the greatest monthly amount, 2.40, occurred at Curtis, and the least, 0.20, at Springview.—*G. A. Loveland.*

Nevada.—The mean temperature was 35.3°, or about 5° above normal; the highest was 76°, at Los Vegas on the 25th, and the lowest, 12° below zero, at Fenelon on the 16th. The average precipitation was 0.51, or about 0.70 below normal; the greatest monthly amount, 1.60, occurred at Palisade, while none fell at a few stations.

The weather of the month was remarkably fine, mild, and pleasant. Plowing was in progress during the greater part of the month. At the end of the month there was but very little snow in the mountains to supply water for irrigation during the coming season.—*J. H. Smith.*

New England.—The mean temperature was 23.3°, or 0.2° above normal; the highest was 68°, at Monson, Mass., on the 12th, and the lowest, 30° below zero, at Berlin Mills, N. H., on the 28th. The average precipitation was 7.13, or 3.69 above normal; the greatest monthly amount, 12.74, occurred at Jacksonville, Vt., and the least, 2.17, at Burlington, Vt.—*J. W. Smith.*

New Jersey.—The mean temperature was 31.0°, or 0.4° below normal; the highest was 69°, at Salem on the 13th, and the lowest, 6° below zero, at Chester and Dover on the 2d. The average precipitation was 5.30, or 1.25 above normal; the greatest monthly amount, 7.88, occurred at Charlotteburg, and the least, 3.27, at Atlantic City.—*E. W. McGann.*

New Mexico.—The mean temperature was 38.2°, or 1.5° above normal; the highest was 80°, at Carlsbad on the 24th, and the lowest, 9° below zero, at Winsors on the 8th and Bluewater on the 9th. The average precipitation was 0.42, or 0.09 below normal; the greatest monthly

amount, 1.35, occurred at Winsors, while at Eagle and Hillsboro none was recorded, and only a trace at Carlsbad, Los Lunas, and Roswell.—*R. M. Hardinge.*

New York.—The mean temperature was 22.7°, or 0.4° below normal; the highest was 69°, at Westfield on the 8th, and the lowest, 34° below zero, at North Lake on the 27th. The average precipitation was 3.87, or 1.06 below normal; the greatest monthly amount, 8.39, occurred at Carmel, and the least, 1.00, at Mount Morris.

The weather during February was very unfavorable for wheat, rye, and grasses. The marked features were lack of snow, sudden and decided changes in temperature, and two or three general rains, followed by freezing temperature, with little or no snow protection, ice forming in bare fields. Wheat is generally brown and lifeless, the reports indicating a decided decline in the condition since January 31. Only about 25 per cent. of the correspondents report favorable prospects at this time.—*R. G. Allen.*

North Carolina.—The mean temperature was 39.3°, or 4.0° below normal; the highest was 78°, at Sloan on the 9th, and the lowest, 6° below zero, at Highlands on the 18th. The average precipitation was 5.80, or 1.46 above normal; the greatest monthly amount, 13.84, occurred at Highlands, and the least, 2.69, at Wilmington.

Farm work was greatly impeded during the month on account of the soaked condition of the soil and the almost impassable roads. Winter wheat suffered considerably by repeated freezing and thawing, and the outlook for that crop was not so favorable.—*C. F. von Herrmann.*

North Dakota.—The mean temperature was 2.0°, or 5.° below normal; the highest was 46°, at Medora on the 21st, and the lowest, 48° below zero, at McKinney on the 9th. The average precipitation was 0.46, or 0.03 below normal; the greatest monthly amount, 1.10, occurred at Towner, and the least, 0.08 at Sheyenne.—*B. H. Bronson.*

Ohio.—The mean temperature was 26.0°, or 2.4° below normal; the highest was 80°, at Lowell on the 8th, and the lowest, 20° below zero, at Green Hill and Millport on the 27th. The average precipitation was 3.53, or 0.65 above normal; the greatest monthly amount, 5.75, occurred at Wauseon, and the least, 2.00, at Willoughby.

Wheat has suffered considerably during the month, mostly from freezing and thawing, which has pushed the plants out of the ground in many localities, and from the deficiency of snow protection. As a result of injuries by the fly and winter killing a good many fields of wheat will be plowed up and sown to oats or planted to corn.—*J. Warren Smith.*

Oklahoma.—The mean temperature was 37.5°, or 0.8° below normal; the highest was 77°, at Fort Sill on the 14th, and the lowest, 3° below zero, at Hopeton on the 17th. The average precipitation was 1.44, or 0.17 below normal; the greatest monthly amount, 4.75, occurred at Hartshorne, and the least, 0.10, at Mangum.

The month was generally favorable to the winter wheat, which is reported in an excellent condition, the damage inflicted by the cold weather being but slight, while the cold acted advantageously in retarding development; rye is reported in fine condition; the ground is in good plowing condition, with abundant moisture; plowing for corn, and oat seeding is well advanced; the fruit is reported in fine condition, all kinds, both large and small, being most promising, the only damage reported being to the early budded peaches.—*C. M. Strong.*

Oregon.—The mean temperature was 39.4°, or 2.1 above normal; the highest was 65°, at Ashland on the 17th, and the lowest, 10° below zero, at Joseph on the 16th. The average precipitation was 4.51, or nearly normal; the greatest monthly amount, 14.00, occurred at Glenora, and the least, trace, at Silverlake.

The general tenor of reports at the end of the month was to the effect that the early grain, although there is a smaller acreage than usual, was never before in better condition than it is the present season, and that no material damage was done by the February freeze to the wheat or fruit crops.—*G. N. Salisbury.*

Pennsylvania.—The mean temperature was 27.1°, or 1.6° below normal; the highest was 81°, at Confluence on the 9th, and the lowest, 17° below zero, at Butler on the 27th. The average precipitation was 4.22, or 1.05 above normal; the greatest monthly amount, 7.75, occurred at Coatesville, and the least, 1.00, at Smethport.

Lack of snow protection, heavy rain storms which badly washed some fields, and successive thawing and freezing, were injurious to winter grain, and its general appearance at the close of the month was below average, but the extent of damage can not be determined until later as the thawing may not have been deep enough to seriously affect the roots. Many reports are favorable and say that the crop appears uninjured. The most damaged portions appear to be local. March weather conditions will largely determine the prospects of the crop. Complaints of injury by fly are numerous.—*T. F. Townsend.*

South Carolina.—The mean temperature was 44.0°, or 2.3 below normal; the highest was 78°, at Georgetown on the, 8th and the lowest, 1°, at Liberty on the 1st. The average precipitation was 5.77, or 1.37 above normal; the greatest monthly amount, 10.61, occurred at Holland, and the least, 1.86, at Yemassee.

The weather conditions were unfavorable for farming operations, and the severe cold of the 18th killed much truck of all kinds in the coastal regions.—*J. W. Bauer.*

South Dakota.—The mean temperature was 13.0°, or about 3° below normal; the highest was 60°, at Forest City on the 28th, and the lowest, 32° below zero, at Watertown on the 14th. The average precipitation was 0.26, or about 0.66 below normal; the greatest monthly amount, 1.03, occurred at Oelrichs, and the least, trace, at Plankinton.—*S. W. Glenn.*

Tennessee.—The mean temperature was 37.3°, or 3.0° below normal; the highest was 76°, at Springfield on the 8th, and the lowest, 9° below zero, at Rugby on the 18th. The average precipitation was 5.17, or 0.23 above normal; the greatest monthly amount, 9.08, occurred at Byrdstown, and the least, 2.70, at Jackson.

On account of the continued cold and the large number of days with rain or snow, but little farm work could be done. The sowing of oats was much delayed and scarcely any other spring planting was done.—*H. C. Bate.*

Texas.—The temperature on an average for the month, determined by comparison of 46 stations distributed throughout the State was 1.8 below the normal. There was a deficiency for the month generally throughout the State with the greatest over east Texas, the eastern portion of north Texas, the coast district, and southwest Texas, where the deficit ranged from 1.5 to 5.6. The highest was 93°, at Fort Ringgold on the 28th, and the lowest, 5°, at Amarillo on the 15th. The precipitation on an average for the month, determined by comparison of 54 stations distributed throughout the State, was 0.68 below the normal. There was a slight excess in a few scattered localities, but there was a general deficiency elsewhere with the greatest amounting to more than 2.00 inches over east Texas and the eastern portion of north Texas. The rainfall for the month was not well distributed throughout the agricultural portions of the State. The greatest monthly amount, 7.34, occurred at Jasper, while none fell at several scattered stations.

The cold weather during the month retarded farming operations generally, and spring plowing has been delayed some on account of dry weather over the northern portion of the State. This work will, however, be rushed as soon as there is sufficient rainfall to put the ground in good condition. Wheat was slightly damaged by the severe freeze of the 17th and 18th, especially where not pastured, and crops on sandy land were injured somewhat by high winds; otherwise, the weather was generally favorable and the crop was reported unusually good at the close of the month. Rain will soon be needed throughout the wheat belt. Winter oats were killed to the ground by the freeze and the crop badly damaged, but the outlook at the close of the month was that the crop would recover as the plant was only killed to the ground. Sowing of spring oats progressed nicely considering the cold weather and lack of rainfall. A good acreage has already been sown, and seeding will soon be completed. Many farmers are preparing to plant corn, and with favorable weather planting will be rushed during the coming month.—*J. L. Cline.*

Utah.—The mean temperature was 32.2°, or 3.8° above the normal; the highest was 73°, at St. George on the 21st, and the lowest, 24° below zero, at Woodruff on the 17th. The average precipitation was 0.57, or 0.65 below normal; the greatest monthly amount, 2.45, occurred at Farmington, the least, none, at Fort Duchesne and eight other stations.—*L. H. Murdoch.*

Virginia.—The mean temperature was 34.7°, or 5.3 below normal; the highest was 78°, at Meadowdale on the 9th, and the lowest, 7° below zero, at Dale Enterprise on the 19th and 20th. The average precipitation was 4.11, or 0.52 above normal; the greatest monthly amount, 5.89, occurred at Stanardsville, and the least, 2.45, at Westpoint.

The close of the month found crop conditions still quite favorable over the State, although there was a slight falling off in winter wheat as compared with its condition at the end of January.—*E. A. Evans.*

Washington.—The mean temperature was 35.7°, or nearly normal; the highest was 67°, at Bridgeport on the 21st, and the lowest, 22° below zero, at Northport on the 15th. The average precipitation was 3.50, or 0.53 below normal; the greatest monthly amount, 15.23, occurred at Monte Cristo, and the least, 0.30, at Moxee.—*A. B. Wollaber.*

West Virginia.—The mean temperature was 30.7°, or 1.3° below normal; the highest was 83°, at Marlinton and Weston on the 8th, and the lowest, 11° below zero, at Elkins on the 20th. The average precipitation was 3.94, or 0.38 above normal; the greatest monthly amount, 5.62, occurred at Madison, and the least, 2.31, at Romney.

The weather during the month was unfavorable for winter wheat, especially the late sown. Practically no farm work was done.—*E. C. Vose.*

Wisconsin.—The mean temperature was 11.3°, or 5.8° below normal; the highest was 60°, at Chilton on the 11th, and the lowest, 39° below zero, at Prentice on the 9th, and at Heafford on the 26th. The average precipitation was 1.73, or 0.28 above normal; the greatest monthly amount, 3.69, occurred at New London, and the least, 0.38, at Waupaca.—*W. M. Wilson.*

Wyoming.—The mean temperature was 20.5°, or 1.2° below normal; the highest was 60°, at Cody on the 28th, and the lowest, 36° below zero, at Basin on the 16th. The average precipitation was 0.90 or 0.14 above normal; the greatest monthly amount, 4.00, occurred at Centennial, and the least, trace, at Basin.—*W. S. Palmer.*

SPECIAL CONTRIBUTIONS.

ANEMOMETER TESTS.

By Prof. C. F. MARVIN.

The present paper aims to give briefly the results of a limited series of experiments recently conducted by the writer to determine the law of action of a small anemometer employed on kites to record the motion of the wind in the free air. For the benefit of those readers of the REVIEW who may not be familiar with experimental work of this character the general question of anemometer testing is also very briefly discussed.

INTRODUCTION.

Methods of testing.—When we employ a given instrument to measure the motion of the wind, the instrument is set up in a fixed position while the wind blows past it. If now we could, independently, ascertain satisfactorily the velocity of the wind during any given interval, it would be an easy matter, from suitable observations under such circumstances to determine the law by which to convert the readings of the instrument into the speed of the wind. Such a method of testing anemometers, however, is not broadly available (1), because we have no means of accurately measuring the speed of the wind, except by some other anemometer which must itself be first tested, and (2), because such experiments do not conveniently afford the range of velocities ordinarily desired. Experiments of this kind are, in fact, simply comparisons between one or more instruments.

In the face of these difficulties those who have sought to solve this problem have been led to adopt the expedient of moving the instrument to be tested at the desired velocity through comparatively still air. In these cases it is assumed that the moving anemometer in still air will behave like the stationary anemometer in moving air. In the older experiments made by this method the instrument was placed on the free end of a horizontal arm arranged to revolve on a vertical axis. The anemometer could thus be made to pass in a circular path through relatively still air.

Various difficulties developed in carrying out experiments by this method all more or less directly due to confining the motion of the anemometer to a circular path of comparatively small diameter. When this was recognized some efforts were made to standardize particular types of anemometers under conditions of straight-line motion such as afforded on locomotives or specially prepared cars running at various speeds across the open country. While this obviates the difficulties of curvilinear motion others of greater consequence are introduced; for example, it appears quite probable that the excessive vibration characteristic of railway trains in rapid motion has an appreciable effect on the friction of most forms of anemometers. Moreover, the difficulty of making due allowance for the natural wind that may be blowing at the time is a very serious one so that results by this method have thus far scarcely equaled in accuracy those otherwise obtained.

In 1888 the writer undertook a series of tests of the standard anemometers employed to measure wind velocity at Weather Bureau stations, and, for this purpose, designed a whirling machine of unusually large dimensions. The maximum length of the arm was 35 feet, measured from the center of the vertical axis to the anemometer axis. At that time it was aimed to conduct the tests in perfectly still air, as nearly as could be obtained, and to this end experiments were made at nighttime in the great closed court of the Pension Building which afforded ample space for the whirler, large as it was. An extensive series of experiments was carried out under these conditions of steady, uniform, motion over a circular path of large diameter. and through practically still air. Anemometers of various dimensions, as well as the standard type, were tested with closely concordant results. When, however, these instruments were afterwards compared in the open air, systematic differences immediately developed, and it was soon discovered that a new factor, not previously considered, must be recognized in conducting anemometer tests; namely, that owing to the inertia of the revolving parts of the ordinary instrument a steady wind will cause it to give a different indication than will result in a gusty wind of the same average velocity. (The word gusty is used throughout this paper to mean—*characterized by marked, sudden, and irregular changes of velocity.*) All natural winds, as far as they have ever been analyzed, prove to be extremely variable, that is, gusty. This being the case it was therefore, a mistake to aim to secure perfectly steady motion in still air during the whirling machine experiments, since, as the instruments were intended for use in the gusty, open-air winds, the artificial test winds should also have been gusty to a corresponding degree. The whirling machine having been necessarily dismantled before the above stated principle was brought out, further experiments in this direction could not be made, but the results of the tests of the standard Weather Bureau anemometer were reduced to open air conditions; that is, to gusty winds, by means of comparisons with small anemometers of slight inertia.[1]

Best conditions for whirling machine experiments.—As a secondary result of the researches referred to, it has long been the writer's opinion that, with proper precautions anemometer tests are best made by the use of a large whirling machine, freely exposed in the open air. The experiments should be made while there is more or less natural wind blowing. It is only necessary to seek a free and open exposure so as to avoid local and abnormal peculiarities in the natural wind, and to deal with a large number of experiments so as to eliminate the large accidental irregularities. The presence of the natural wind has the effect of alternately adding to and subtracting from the artificial wind resulting from the steady motion of the whirler, so that the actual resultant wind affecting the anemometer thereby acquires a gusty character with a maximum and minimum velocity once in each complete turn of the whirler. This resultant velocity is made still further irregular by the variations in the natural wind. The artificial, gusty wind thus secured affords a highly appropriate test wind for anemometers that are to be used in the open air.

RECENT EXPERIMENTS.

It became necessary recently to test a small form of anemometer used on kites, and, guided by the considerations stated above, the large whirling machine formerly used was rehabilitated during May, 1899, and installed at Arlington, Va., adjacent to the automatic steam kite reel, a location which afforded an exceptionally free exposure in the open air.

The whirling machine.—The construction of the machine is readily understood from fig. 1, Pl. I. The slender horizontal arm was made up of sections of standard wrought-iron pipe, of which the central piece was 2½ inches nominal inside diameter. The distance from the central axis to the axis of the anemometer was 28.01 feet (8.54 m.). In the early experiments, made in 1888, it was demonstrated that this length was ample to eliminate the more serious defects of circular motion, and it was adopted because it leads to a very simple and convenient mathematical relation employed in computing the velocity at the end of the arm. The equations will be given further on. Originally the whirler was

[1] Annual Report of Chief Signal Officer, 1890, p. 691.

driven entirely by hand power, but in the present case a long rope-belt connection was made with the small steam engine employed to run the automatic kite reel. Thirty-five miles per hour was about the highest speed that could be given the anemometer by hand power. With the small steam engine a velocity at the end of the arm of nearly 60 miles per hour could be maintained.

The arrangement of the apparatus is shown in fig. 1, Pl. I. The anemometer on the end of the arm is one of the small type used on kites. Two other anemometers are seen in the picture. These represent two methods that were employed to measure the natural wind movement during an experiment. In the earlier tests this wind movement was deduced from the record made by an anemometer surmounting the central axis of the whirler. Since in this case the whole anemometer revolves with the fixed central axis of the whirler, it is plain that when the anemometer cups and whirler revolve in the same direction the speed of the wind must be deduced from the *sum* of the turns of the whirler and the recorded rotations of the cups, but from the *difference* of these when the directions of rotation are opposed to each other. A difficulty developed here when there was little or no natural wind and the speed of the whirler was considerable. This will be understood from what follows. The central anemometer recorded by momentarily breaking the electric circuit, generally once for each revolution of the cups. If now the whirler and anemometer revolve in the same direction and at the same speed, no record should be made, but if it so happens that the motion of the cups is in the act of causing a break in the circuit, it is easy to see that natural variations in the wind will cause the cups at one moment to go a little faster than the wind and at the next to slow up and lag behind the whirler in speed, thereby causing, perhaps, several electrical records to appear where but one or none should be found. Even if there is no apparent defect of this sort in the record, there is yet the possibility that at times some of the recorded breaks of the circuit should be counted up in the negative sense.

The central position was regarded as the best for the anemometer employed to measure the natural wind, but it had, nevertheless, to be abandoned for the reasons given above, and an anemometer seen at the left of fig. 1, Pl. I, was used instead. Generally, this was directly to windward of the axis of the whirler.

Ordinarily, the machine was driven by the steam engine. In a small number of tests at very slow speeds, however, the whirler was driven by hand, either by use of the crank, plainly seen in the picture, or by use of the annular wooden ring also seen leaning against the framework of the machine. When this is used the small horizontal countershaft is removed and the annular plate bolted securely down upon the large gear on the central shaft. The operator then takes up a convenient position and drives the machine at the desired speed by force applied to the handles projecting above the plate. This mode of driving the arm yielded exceedingly smooth, steady motion, and is the one employed in the early experiments of 1888.

Anemometers.—Fig. 2, Pl. I, shows the kite anemometer as attached to a spar on the kite. The clamp admits of adjusting the axis to an approximately vertical position according to the average angle of incidence of the kite. The pins on the dial wheel *close* the electric circuit after 3,000 revolutions of the cups. A special contact was used during the experiments which operated to *break* the circuit momentarily each 500 turns of the cups. Two similar anemometers of this small size, designated kite No. 1 and No. 2, respectively, were tested. The latter, however, received only two tests. In addition, a number of tests were made of a standard aluminum cup anemometer, such as used at stations. Tests were likewise made of two sets of paper cups.[2] These were of the same dimensions as the aluminum cups, but of extremely light construction. Owing to their frailty the tests were limited to low velocities. Their extreme lightness rendered them especially responsive to marked and sudden variations of the wind velocity, and, for this reason, they were principally used in the measurement of the natural wind. In this case electrical registration during light winds was effected for *each rotation* of the cups and for each ten revolutions in stronger winds. When the aluminum or paper cups were tested on the whirler a special spindle[3] was employed which produced a momentary *break* in the electric circuit for each 100 revolutions of the cups. This spindle was provided at the top with the rolling bearings, shown in fig. 3, that afforded the minimum frictional resistance. In the early experiments in the Pension Building court it was shown that the diminution of friction resulting from the use of this bearing led to only a slight influence on the indications of the instrument. In other words, the standard Weather Bureau anemometer is of such excellent construction that the friction exerts a barely appreciable influence on the running of the instrument. It may be noted in this connection that the friction in an anemometer undergoing test on a whirling machine is greater than in the ordinary use of the instrument because of the centrifugal action in the curvilinear path. On this account it is judged to be preferable to use the rolling bearings in whirling machine tests, especially when the length of the arm is only 10 or 15 feet and less, as in most of the experiments prior to those conducted by the writer.

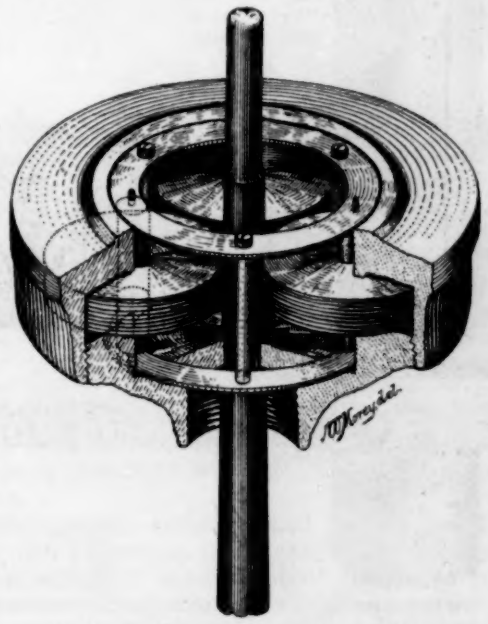


FIG. 3.

Automatic registration.—The conditions of the experiments require: (1) Record of the revolutions of the anemometer

[2] All the standard anemometers of the Weather Bureau are made in two separate parts, which are all perfectly interchangeable. It is customary to call these parts, respectively, "the cups," or "set of cups," and "the spindle," or sometimes the "anemometer without cups." A "set of cups" consists of four hemispherical cups mounted on steel cross arms provided with a suitable hub at the center which latter is bored to fit the steel rod forming the axis of revolution of the anemometer. In all cases the cups are so mounted as to revolve clockwise; that is, a cup moves from the north around to the east, south and west.

[3] The spindle comprises the remaining parts of the instrument consisting of the steel axis with all its mountings, worm, gearing, dials, and electrical devices employed to measure and indicate the revolutions of the cups. These words will be used in this sense of this paper.

undergoing test; (2) a record of the turns of the whirler during the same interval; finally, (3) a record of the revolutions of the anemometer employed in measuring the natural wind. In addition, we need to be able to determine easily the speed of the whirler at any moment and to regulate the same as may be desired.

For these purposes a good break-circuit, seconds pendulum clock was employed, together with the Alvan Clark astronomical chronograph, provided with two recording pen carriages. The clock and chronograph with necessary batteries were installed in a suitable shed about 150 feet south of the whirler. Electrical connections were made by means of a three-conductor cable buried just below the surface of the ground. One of the wires of the cable made direct metallic connection with the whirler, the shed end of the same wire being joined to similar poles of two batteries. The opposite pole of one of these batteries was connected by wire to the clock, thence to No. 1 carriage on the chronograph; thence, to an ordinary telegraph sounder located near the engine; thence, to a break-circuit spring operated by the whirler, see fig. 4; thence, along the arm to the anemometer on the end, where metallic connection was again made to the whirler.

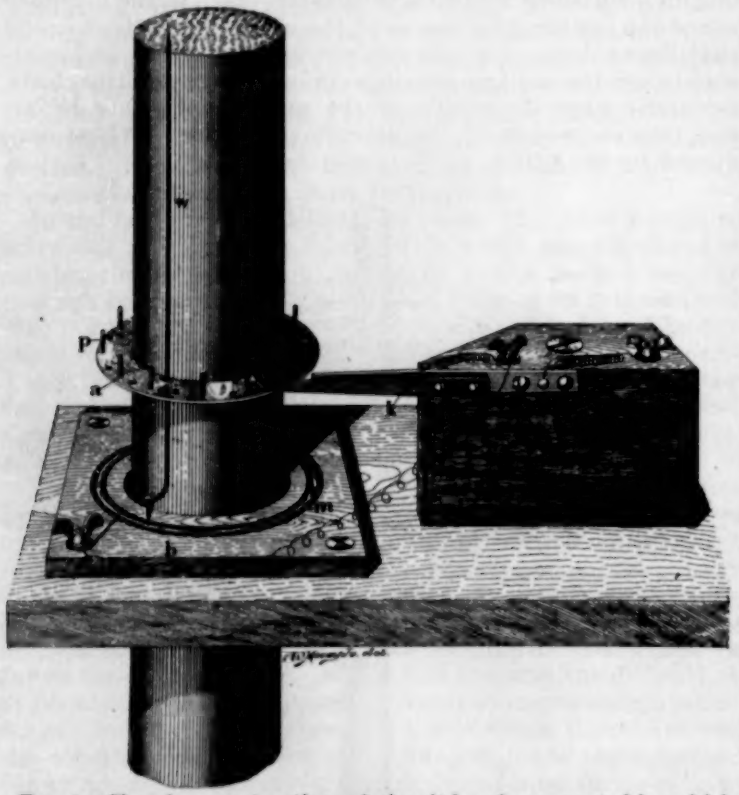


FIG. 4.—Showing construction of circuit breaker operated by whirling arm, as employed in 1888. In recent experiments the annular mercury trough, *m*, through which electrical connection was made with the wire *W*, was replaced by a brush contact on an insulated ring on the shaft.

The free pole of the second battery was connected direct to the No. 2 carriage on the chronograph; thence to the anemometer employed to measure the natural wind. When this instrument was erected on the pole a connecting wire joined the circuit to the main battery wire in the cable. Both systems were on closed circuits.

The chronographic record produced by the No. 1 carriage embraced (*a*), the regular beats of the seconds pendulum; (*b*), the frequent beats marking the revolutions of the whirler; (*c*), the infrequent breaks in groups of 100 or 500 turns, as the case might be, marking the revolutions of the anemometer to be tested. In the meantime the No. 2 carriage produced its records of the rotations of the anemometer employed to measure the natural wind. In light winds every revolution of the cups was recorded. Generally, each break of the circuit represented 10 turns of the cups.

Prior to starting a record it was customery to cause the two pens of the chronograph to make marks on the record sheet while the cylinder was stationary. From marks thus made simultaneous times could afterwards be laid off on the two records with extreme accuracy.

The telegraphic sounder located near the steam engine or whirler gave an audible effect corresponding to the several events recorded by the No. 1 pen carriage and enabled the operator to judge of the proper action of the whole apparatus and to regulate the speed of the whirler as might be desired. This was further facilitated by the convenient mathematical relation resulting from the use of a 28-foot arm which gives rise to the following equation for the velocity at the end of the arm:

$$V = 120\frac{N}{t} \text{ in miles per hour.}$$

N is the number of revolutions of the whirler in t seconds. The axis of the whirler carries an annular disk, pierced with 24 equidistant holes, to which are fitted 24 removable pins. As the axis revolves, the pins that may be inserted in the holes break the electric circuit. If now 24 pins are in position and the speed is regulated so that the electric circuit is broken every two seconds, we will have a speed of one revolution in forty-eight seconds; that is, 2.5 miles per hour at the end of the arm. If every other pin is removed, that is, if the disk contains 12 equidistant pins, and the arm is speeded until a break is again made every two seconds, we get a velocity of 5 miles per hour. Six pins give 10 miles an hour; 4 pins, 15 miles an hour; 3 pins, 20; 2 pins, 30, and 1 pin, 60 miles per hour. With a little practice it is easy for the operator, guided by the telegraph sounder, to regulate the speed with great exactness, especially in quiet air and with moderate speeds. When using the steam engine it was customary to place only one pin in the disk. For 30 miles an hour the engine was speeded to give a break every four seconds; every three seconds resulted in 40 miles per hour, etc. Variations in the velocity of the natural wind had a noticeable effect on the speed of the whirler while driven with a fixed expenditure of power.

Reduction to rectilinear motion.—A test of an anemometer of the Robinson type at a given velocity is not complete unless a result is obtained when the whirler is revolved in both the forward and backward sense. When the whirler turns in the north, east, south, west direction, the anemometer cups revolve in the same sense, and the driving pressure of the wind acts upon the concave cups while they are nearest the central axis of the whirler, in which position the artificial wind velocity is less than that of the opposing wind acting upon the concave cups which are then in a position farthest from the axis. Under these conditions the anemometer will run at a slower rate than if its axis moved at the same velocity along a rectilinear instead of a curved path. On the other hand when the whirler revolves in the north, west, south, east direction the conditions are reversed and the anemometer runs faster than for rectilinear motion.

If the length of the anemometer arms is small, relative to that of the whirler, the mean of the results for right and left-handed motion is equivalent to a result for rectilinear motion.

In this connection we need to observe that the number of revolutions of the cups registered by the counting mechanism after a given interval, is not the actual number of turns, but only the number in relation to the whirling arm, which itself may in the meantime have made several revolutions. To find the real number of turns of the anemometer cups during any time it is necessary to add or subtract from the apparent

number one turn for each revolution made by the whirling arm. A knowledge of this fact has led some to suppose that such a correction should be applied to all whirling machine experiments, but such is not the case, for the reason that while such a method would give the actual number of revolutions of the anemometer cups in relation to any fixed object, yet, since the direction in which the air acts upon the cups of the anemometer is itself as the arm revolves, continually changing, relative to the fixed object, it follows that the real number of turns of the cups in relation to the air which makes them revolve is, after all, simply the apparent number of turns indicated by the dials. It is, therefore, erroneous to apply any correction of this kind as one is at first led to suppose.

Correction for natural wind. It is sometimes hastily concluded that a natural wind acting uniformly throughout the whole orbit of the whirler neither adds to nor detracts from the movement of the anemometer being tested, because the loss in one-half the orbit is made up by the gain in the other half. This is a mistake, and it can easily be shown that there is an appreciable gain in all cases. The magnitude of the momentary resultant wind, R, is shown graphically in fig. 5 for several positions of the anemometer.

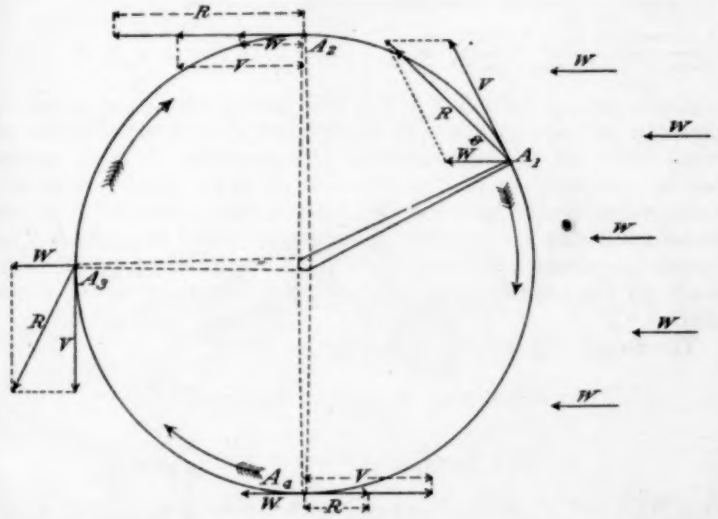


FIG. 5.—Diagram of resultant wind R for anemometer moving at speed V and influenced by a uniform natural wind at velocity W.

The mean resultant wind for the whole orbit may be found graphically by the aid of a diagram like fig. 6. The semicircle is struck with a radius V representing the speed of the anemometer, and subdivided into a convenient number of sectors, as indicated. The resultant R is found for each point; and the sum of these for the entire orbit divided by the number of points taken gives the mean resultant wind that should be used in reducing the observations. The writer has employed this graphic method of deriving the resultant wind in a few cases largely as a check on results deduced numerically by the use of the following equation:

$$(1) \qquad R = V + \frac{W^2}{4V} + \text{etc.}$$

which is obtained by the methods of calculus from the equation:

$$R = \sqrt{V^2 + W^2 + 2VW\cos\theta}$$

giving the value of the resultant at a point where θ is the angle between the two motions V and W.

The first two terms of equation (1) are ample for all ordinary cases.

Table 1, deduced from an actual test, gives the momentary value of the resultant at successive points in the rotation of the whirler during a strong wind, and illustrates the very gusty character of the resultant wind acting upon the anemometer.

TABLE 1.—*Momentary resultants at 32 points of orbit.*

Velocity of end of arm: $V = 37.11$ miles per hour. Mean velocity of natural wind: $W = 17.52$ miles per hour.

Point.	Resultant.	Point.	Resultant.	Point.	Resultant.	Point.	Resultant.
1	54.63	9	41.10	17	19.59	25	41.10
2	54.38	10	37.90	18	20.19	26	44.07
3	53.70	11	34.51	19	21.85	27	46.70
4	52.57	12	31.08	20	24.62	28	49.15
5	51.02	13	27.75	21	27.75	29	51.02
6	49.15	14	24.62	22	31.08	30	52.57
7	46.70	15	21.85	23	34.51	31	53.70
8	44.07	16	20.19	24	37.90	32	54.38
Mean..	.....	.....	.....	.....	.....	.....	39.23

Mean resultant deduced by equation (1) $R = 39.18$.
Mean resultant deduced by graphic method, 39.23.

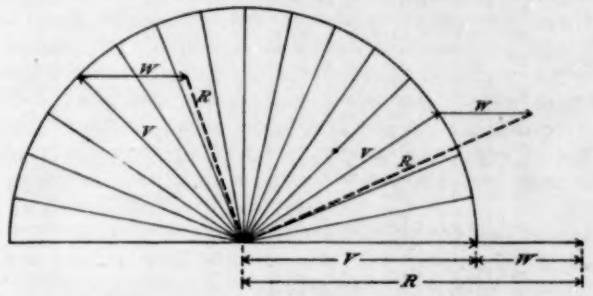


FIG. 6.

At the speed in question the whirler was turning at the rate of one revolution in 3.3 seconds, and in each rotation the resultant speed varied from 19.6 to 54.6 miles per hour. These were extreme conditions, but the result obtained corresponds satisfactorily with others under average conditions.

Experiments described.—In conducting a test an assistant starts the chronographic record while the whirler is brought to the desired speed, which is then maintained as steady as practicable for a period of from five to ten minutes, according to circumstances. Thereafter other tests are made at different speeds. As far as possible the tests were arranged in pairs, embracing both right-handed (N. E. S. W.) and left-handed (N. W. S. E.) directions of rotation of the whirler. The change in direction was effected by crossing the rope driving belt.

The chronographic record traced by the No. 1 recording pen, gave the following data: (*a*), The elapsed time, in seconds and tenths, of each group of registered rotations of the anemometer being tested; (*b*), the number of revolutions made by the whirler in this same time. Finally, by projecting the simultaneous time upon the record of the natural wind as traced by the recording pen No. 2, the number of revolutions made by this anemometer in the same interval of time could also be ascertained with accuracy. A simple inspection of the whirler marks on the chronographic record enabled one to judge accurately of the speed of the arm and the regularity of its motion. In computing results it was customary to tabulate the elapsed time for each registration of the anemometer. The uniformity in these times was a fair evidence of a satisfactory set of conditions. The sum of these times, that is the total time from the first to the last registration of the anemometer, represented the real duration of the test and is given in the column headed t, in Table 2, which gives in chronological sequence the data for all the tests.

TABLE 2.—*Anemometer tests on whirling machine in open air.*

Date.	No. of experiment.	*t.*	*u.*	*N.*	*R.*	*W.*	Instrument.	Direction.	*U.*
1899.									
May 18[1] ..	1	378.8	3,500	63.0	21.50	10.9	Kite No 1...	Right....	1,547
Do.....	2	383.3	3,500	64.0	20.99	8.9	....do.	Left.....	1,566
Do.....	3	377.0	2,500	46.0	20.78	7.9	....do.	Right....	1,564
Do..	4	259.9	2,500	43.3	21.56	11.15	....do.	Left.....	1,606
May 19....	5	346.0	14,500	261.6	39.18	17.52	....do.	Right....	1,575
Do.....	6	258.0	1,500	72.5	35.39	.....	Aluminum ..	...do.	591
		467.5	3,000	145.0	38.73	.....	....do.	...do.	596
		753.6	5,000	245.5	40.43	.....	....do.	...do.	589
Do	7	573.5	4,300	195.3	42.10	.....	....do.	Left.....	639
May 20....	8	527.6	10,000	183.6	42.93	13.99	Kite No. 1...	Right....	1,589
Do.....	9	509.7	9,500	171.6	40.98	9.66	....do.	Left.....	1,637
May 22....	10	382.0	300	16.1	5.75	3.73	Paper No. 1..	Right....	492
Do.....	11	382.9	300	16.1	5.38	2.56	... do.	Left.....	524
Do.....	12	406.3	300	17.3	5.55	2.98	Paper No. 2..	Right....	479
Do.....	13	500.9	400	20.7	5.38	2.88	....do.	Left.....	534
May 23....	14	450.6	8,500	162.2	43.44	6.38	Kite No. 1...	Right ...	1,563
Do.....	15	443.8	8,500	158.3	42.97	5.36	....do.	Left.....	1,605
Do.....	16	436.7	3,000	145.5	40.31	7.22	Aluminum ..	...do.	614
Do..	17	307.3	2,000	105.2	41.47	8.00	....do.	Right....	565
Do.....	18	314.8	2,000	101.5	39.35	10.14	....do.	...do.	581
		68.8	500	25.3	44.56	8.72	....do.	...do.	587
May 26[2]...	19	193.9	3,000	58.1	36.17	5.47	Kite No. 1...	...do.	1,540
Do.....	20	220.5	3,000	58.0	31.60	2.13	....do.	...do. ...	1,550
		184.5	4,000	74.2	48.40	5.13	....do.	Left.....	1,613
Do.....	21	179.0	3,000	56.0	37.79	6.13	....do.	...do.	1,597
May 27....		277.5	5,500	105.8	45.85	4.32	....do.	Right....	1,556
Do.....	22	129.8	3,000	57.0	53.81	4.91	....do.	...do.	1,576
		289.3	5,500	105.2	43.80	5.33	....do.	...do.	1,563
Do.....	23	199.1	4,000	74.6	45.12	5.43	....do.	Left.....	1,603
		85.3	2,000	36.7	51.75	4.98	....do.	...do.	1,631
Do.....	24	371.0	2,000	31.0	11.48	7.63	....do.	Right....	1,691
		284.9	1,500	23.8	11.37	7.35	....do.	...do.	1,667
Do.....	25	298.8	1,500	25.0	11.11	6.55	....do.	Left.....	1,627
May 29....	26	355.1	600	29.9	11.46	7.40	Paper No. 2..	Right....	531
Do.....	27	447.7	800	37.6	10.98	5.86	....do.	Left.....	588
Do.....	28	334.3	600	27.9	11.16	6.78	Aluminum ..	Right....	579
Do.....	29	406.8	800	33.7	11.21	7.11	....do.	Left.....	632
Do.....	30	334.0	600	28.7	11.58	7.37	Paper No. 1..	Right....	558
Do.....	31	212.7	400	17.7	11.31	7.18	....do.	Left.....	599
June 3....	32	336.9	1,500	28.1	10.59	4.83	Kite No. 1...	Right....	1,514
Do.....	33	234.7	1,000	18.7	10.58	4.87	....do.	Left.....	1,514
		98.8	500	7.8	11.12	6.74	....do.	...do. ...	1,726
Do.....	34	314.2	4,500	85.0	32.97	8.16	....do.	Right....	1,564
Do.....	35	330.5	1,600	85.5	31.36	6.31	Al. cups.	...do.	556
Do.....	36	280.9	1,300	69.9	30.22	6.54	....do.	...do.	551
Do.....	37	557.4	3,100	152.9	33.27	6.76	... do.	Left.....	602
Do.....	38	389.5	5,500	100.3	31.48	8.43	Kite No. 1...	.. do.	1,600
Do.....	39	561.0	9,000	165.4	35.89	8.47	....do.	...do.	1,609
Do.....	40	340.7	7,000	129.6	45.96	7.56	....do.	...do. ...	1,609
Do.....	41	620.9	12,000	227.4	44.33	8.14	....do.	Right....	1,570
Do.....	42	619.4	4,000	209.3	40.84	6.87	Al. cups.....	...do.	569
Do.....	43	314.7	1,900	102.2	39.12	4.78	.. do.	...do.	556
Do.	44	288.7	4,500	86.9	36.28	4.79	Kite No. 1...	...do.	1,547
Do.....	45	55.0	1,000	19.2	42.12	6.24	...do.	...do.	1,554
June 13[3]..	46	373.8	850	16.0	5.60	3.07	Kite No. 2...	...do.	1,462
Do.[3].....	47	372.6	800	15.5	5.18	1.85	....do.	Left.....	1,492
Do.[3].....	48	320.9	200	13.4	5.22	2.05	Paper No. 2..	Right....	430
Do.[3].....	49	384.7	300	16.5	5.63	3.15	....do.	Left.....	499
Do.[3].....	50	290.2	200	12.5	5.49	2.57	Paper No. 1..	Right....	432
Do.[3].....	51	291.2	200	12.3	5.18	1.50	....do.	Left.....	477
Do.[3].....	52	431.1	1,000	18.4	5.64	3.26	Kite No. 1...	Right....	1,481
Do.[3].....	53	440.6	1,000	18.7	5.49	2.85	....do.	Left.....	1,488
Do.[3].....	54	444.8	2,000	38.0	10.54	3.46	....do.	Right....	1,536
Do.[3].....	55	321.7	1,500	28.4	10.96	3.89	....do.	Left.....	1,532
June 20[3]..	56	330.9	500	27.3	10.55	5.08	Paper No. 1..	Right ...	516
Do.[3].....	57	368.7	600	30.5	10.62	5.22	....do.	Left.....	552
Do.[3].....	58	311.7	500	25.8	10.69	5.49	Al. cups.....	Right....	540
Do.[3].....	59	405.1	700	34.4	10.89	5.33	....do.	Left.....	571
Do.[3].....	60	298.1	900	49.3	20.14	4.82	....do.	Right....	540
Do.[3].....	61	344.2	1,100	56.5	20.05	5.23	....do.	Left.....	574
Do.[3].....	62	223.3	700	37.2	20.43	5.94	....do.	Right....	552
Do.[3].....	63	346.8	800	39.9	19.86	6.00	....do.	Left.....	588
Do.....	64	489.6	1,800	97.8	24.51	5.54	....do.	Right...	540
Do.....	65	368.6	1,200	68.9	21.35	6.76	... do.	Left.....	595
Do	66	345.6	3,500	64.6	22.92	6.62	Kite No. 1...	...do.	1,591
Do.....	67	361.4	3,500	65.8	22.35	7.61	....do.	Right....	1,560
Do.....	68	270.0	3,500	67.3	30.35	7.29	....do.	...do.	1,538
Do.....	69	323.9	5,000	90.2	33.95	8.38	....do.	Left.....	1,637
Do.....	70	332.7	1,800	84.8	31.30	8.73	Al. cups.	...do.	622
Do.....	71	376.1	1,900	96.1	31.39	9.48	....do.	Right....	579
Do.....	72	380.4	2,300	118.9	37.91	7.52	....do.	...do. ...	574
Do.....	73	363.2	2,700	128.0	42.55	6.57	....do.	Left.....	629
Do.....	74	295.1	5,500	101.9	41.71	6.54	Kite No. 1...	...do.	1,609
Do.....	75	323.6	6,000	113.6	42.85	11.05	....do.	Right....	1,558
June 26...	76	356.8	1,200	67.1	22.80	4.51	Al. cups.....	...do.	531
Do.....	77	402.2	1,900	102.9	30.94	5.44	....do.	...do.	550
Do.....	78	350.3	2,200	116.0	39.94	5.58	....do.	...do.	569
Do.....	79	358.6	2,700	141.3	47.38	3.89	....do.	...do.	572
Do.....	80	163.3	1,300	66.1	48.75	5.91	....do.	...do.	588
Do.[4].....	81	189.3	800	40.7	25.88	2.96	....do.	Left.....	588
Do.....	82	357.0	1,200	62.8	21.24	3.36	....do.	...do.	570
Do.....	83	357.5	1,700	82.0	27.67	4.05	....do.	...do.	619
Do.....	84	364.0	2,400	118.8	39.29	4.25	....do.	...do. ...	604
Do.....	85	352.9	2,900	138.3	47.35	7.77	....do.	...do.	625
Do.....	86	329.0	3,000	142.3	52.06	5.84	....do.	...do.	631
Do.....	87	315.5	3,000	58.3	22.26	2.90	Kite No. 1...	Right....	1,538
Do.....	88	348.3	4,500	86.3	29.90	4.56	....do.	...do	1,555
Do.....	89	365.0	6,500	124.2	40.99	5.15	....do.	...do.	1,564
Do.....	90	386.9	8,000	153.3	47.60	3.37	....do.	...do.	1,564
Do.....	91	386.5	9,000	172.0	53.45	3.39	....do.	...do.	1,568
Do.....	92	330.0	3,000	56.6	21.40	3.90	...do.	Left.....	1,577
Do.....	93	366.6	5,000	93.4	30.80	5.26	....do.	...do.	1,594
Do.....	94	353.9	6,500	120.5	41.05	5.53	....do.	...do.	1,611
Do.....	95	350.3	7,500	140.6	48.26	4.94	....do.	.. do.	1,597
Do.....	96	357.4	8,000	148.2	49.85	4.19	....do.	.. do. . .	1,616
July 10....	97	288.9	2,500	49.2	21.05	7.06	....do.	Right....	1,480

TABLE 2.—*Anemometer tests*—Continued.

Date.	No. of experiment.	*t.*	*u.*	*N.*	*R.*	*W.*	Instrument.	Direction.	*U.*
1899.									
July 10....	98	348.5	4,500	87.2	30.17	4.07	Kite No. 1...	Right...	1,541
Do.....	99	363.5	6,500	125.7	41.62	4.29	....do.	...do.	1,547
Do.....	100	290.0	6,500	126.0	52.15	1.13	....do.	...do.	1,547
Do.....	101	392.3	3,000	57.4	17.66	2.72	....do.	Left.....	1,559
Do.....	102	369.9	3,500	65.0	21.25	3.62	....do.	...do.	1,608
Do.....	103	346.6	4,500	84.4	29.28	2.68	....do.	...do.	1,596
Do.....	104	344.8	6,500	122.5	42.79	1.66	....do	...do.	1,586
Do.....	105	389.5	9,000	166.8	51.43	2.71	... do.	...do.	1,617
Do.[5]....	106	356.5	3,000	56.7	19.33	3.96	....do.	...do.	1,567
Do.[5]....	107	376.1	5,000	94.5	30.19	2.24	....do.	...do.	1,585
Do.[5]....	108	354.0	6,500	120.9	41.08	3.95	....do. ...	...do. ...	1,609
Do.[5]....	109	446.6	10,000	184.7	49.74	4.61	....do.	...do.	1,621
Do.[6]....	110	382.1	3,500	61.8	19.80	5.50	....do.	...do.	1,665
Do.[6]....	111	370.0	5,500	94.4	31.02	6.99	....do.	...do.	1,725
Do.[6]....	112	366.4	6,000	122.1	40.17	5.44	....do.	...do.	1,468
		159.6	3,000	52.2	39.44	5.51	....do.	...do. ...	1,716
		206.8	3,000	69.9	40.74	5.38	....do.	...do.	[7]1,282
Do.[6]....	113	376.0	9,000	150.3	48.08	4.54	....do.	...do.	1,792
		281.4	6,500	111.6	47.68	4.13	....do.	...do.	1,744
Do.[5]....	114	410.6	3,500	68.1	20.17	4.62	....do.	Right....	1,521
Do.[5]....	115	381.7	5,000	95.7	30.20	3.72	....do.	...do.	1,562
Do.[6]....	116	235.8	3,500	67.4	34.45	4.47	....do.	...do.	1,551
		361.4	6,000	116.1	38.61	3.11	....do.	...do.	1,548
Do.[5]....	117	356.7	7,500	142.6	48.10	4.48	....do.	...do.	1,574
Do.[6]. ...	118	376.9	3,500	64.3	20.73	4 58	....do.	...do.	1,613

[1] Wind measured by anemometer on vertical spindle of whirling machine.
[2] Wind measured by anemometer on pole located to windward of whirler on and after May 26, 1899.
[3] By hand. Anemometer registration every fifty revolutions.
[4] Contact defective.
[5] Anemometer tilted forward 20°.
[6] Anemometer tilted backward 20°.
[7] Spindle bearing unscrewed.

Explanation of Table 2.—The effective duration of a test is given in seconds in the column headed t; u is the number of revolutions of the anemometer in t seconds; N is the number of revolutions of the whirler in same time; W is the mean velocity of the wind during the experiment; R is the mean resultant velocity of the artificial wind experienced by the anemometer being tested; U is the number of revolutions made by the anemometer per mile of resultant wind movement.

The following equations apply:

$$V = \text{Velocity at end of arm} = 120\frac{N}{t}$$

$$R = \text{Resultant wind} = V + \frac{W^2}{4V}$$

U = Number of revolutions of anemometer per mile of wind.

$$U = \frac{3600\,u}{R\,t}$$

The dimensions of the several "sets of cups" are as follows:

	Standard, aluminum.	Kite No. 1.	Kite No. 2.	Paper No. 1.	Paper No. 2.
Mean diameter of cups, inches.....	4.07	1.22	1.22	4.11	4.14
Length of arms to cup centers, inches..	6.65	1.96	1.96	6.68	6.65
Diameter of arms, inches.....	0.11	0.03	0.03	0.10	0.14
Weight, ounces	9.56	0.33	0.31	1.27	1.72
Moment of inertia, grams, c^2	51330	.....	.....	.....	7783

The moments of inertia were measured in a former investigation, made in 1894, using for this purpose the torsional pendulum illustrated in fig. 7. By noting the time of oscillation of the pendulum, when loaded with the cups, as shown, the moment of inertia is easily computed by comparison with the times of oscillation when loaded with a weight of some simple form of known moment of inertia, such as the cylinder c. It was convenient, also, to swing long cylindrical rods whose moment of inertia could easily be computed. In this case the rods were placed in the stirrup holding the cups, as shown in the figure. The torsional pendulum shown was too stiff to use for the small kite anemometer and its moment of inertia was not ascertained.

GENERAL RESULTS.

The tests of the paper cups[1] were limited to low velocities, as these were used only in measuring natural wind. The following mean values of U were found:

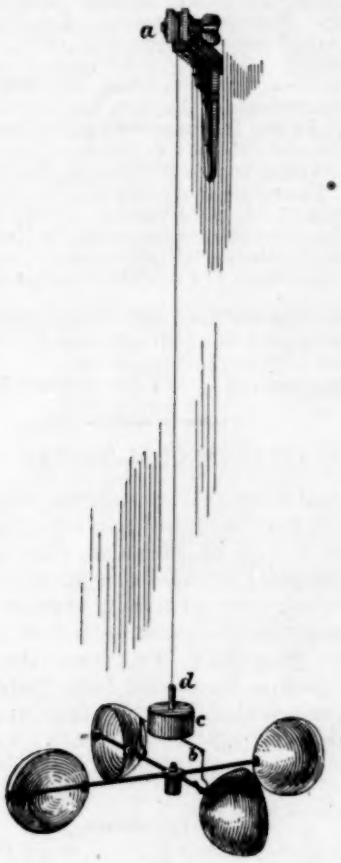


FIG. 7.

Paper No. 1.			Paper No. 2.			U deduced from 1888 experiments.
Number of tests.	Velocity, in miles per hour.	U.	Number of tests.	Velocity, in miles per hour.	U.	
4	5.45	486	4	5.44	485	494
4	10.00	556	2	10.20	560	535

The above results embrace in all only 14 tests, and yet the agreement may be regarded as very satisfactory. The value of U, given in the last column deduced from the experiments of 1888, applies strictly to an anemometer of greater moment of inertia than the paper cups, and according to theory should be slightly higher for the same conditions.

The mean results of the tests of the standard aluminum cup anemometer and of the No. 1 kite anemometer are given in the following table, together with the values of U deduced from the experimental work of 1888.

Standard aluminum cup anemometers.					Kite anemometer No. 1.		
Number of tests.	Velocity.	U.	U, 1888 experiments.	Difference.	Number of tests.	Velocity.	U.
.....	.....	.....	.....	.....	2	5.56	1,484
4	10.98	581	530	−51	6	10.88	1,569
8	21.30	561	572	+11	11	21.25	1,563
8	30.25	584	593	+ 9	9	31.17	1,575
12	40.08	600	612	+12	18	40.85	1,584
4	48.88	604	626	+22	12	49.52	1,587

From the column of differences it appears that the new results show a slightly lower rate of speed of the anemometer in a given wind than formerly deduced. It is worth noting, however, that the sum of the plus and minus differences just balance each other, but we regard this as no more than a coincidence. Nevertheless, the results based on the greater number of observations show a very satisfactory agreement, the discrepancy being less than 2 per cent. We may therefore conclude that these tests in the open air afford a most substantial confirmation of the general accuracy of the older investigations which were made by a method that we now regard as less direct and trustworthy.

It is regretted that the crude and improvised installation of the apparatus and the insufficient power of the small engine available restricted the investigation in several ways and limited the speed attainable to velocities below such as frequently occur in regular station observations. The great irregularity of results unavoidably incident to this method of experimentation and the limited number of tests at each velocity thus far obtained, do not, in the writers opinion, warrant any further refinement of discussion than that given above.

An effort was made to ascertain the effect of tilting the axis of the anemometer forward and backward at moderate angles and the experiments noted in Table 2 were made. The results were, in some cases, vitiated by faulty action and were not on the whole satisfactory. Time was not available to continue these studies, but I think it is demonstrated that the error in the indications of an anemometer attached to a kite is not of a serious character, even when the axis of the instrument deviates continuously as much as 20° from the vertical. In good kite work the deviation can easily be reduced much below this.

In conclusion, it is noticed that the value of U for the kite anemometer for velocities from 10 to 50 miles per hour is almost constant, the extreme variation being only about 1.5 per cent. This again confirms a conclusion to this same effect reached in 1888, namely, that anemometers whose cups are large, as compared with the length of arms, run at a speed bearing a more nearly constant ratio to that of the wind than do anemometers with relatively longer arms.

[1] *Construction of paper cups.*—It may be interesting to know how the paper cups were made. A hemispherical metal cup, such as used on the standard anemometers served as a model or mould over which the paper cup was constructed. A strip of stiff, strong paper is cut out of sufficient length to encircle the mouth of the cup allowing a slight lap. One edge is subdivided into twenty equal parts, each of which is made the base of a gore or triangle with curved sides; that is, these gores correspond exactly to the spherical triangles on a globe between the meridians of longitude and with their bases at the equator. The superfluous paper between the gores is carefully cut away, except close to the base where all the gores join together. The strip of paper thus prepared can be fitted very closely to the metal form, and the edges of the gores united by gluing a narrow strip of thin linen paper over the seams. The apex or pole of the gores should be strengthened by a small disk of strong paper. A narrow girdle should also be fitted and glued across the gores at about 45° of latitude. The cups were mounted on slender wooden arms, to which they were secured by wax, one or two coats of shellac varnish were applied to keep out moisture. Carefully made cups of this character will run for some time in the ordinary gusty winds averaging from 20 to 25 miles per hour.

TWO THUNDERSTORMS AT THE ROYAL ALFRED OBSERVATORY, MAURITIUS.

By T. F. CLAXTON, Director, dated February 12, 1900.

The reproductions of the Mauritius meteorgrams (Chart XI) are more eloquent than any account of the two thunderstorms which occurred at the Royal Alfred Observatory on January 29 and 30, 1900; though a few words are necessary for the clear interpretation of the registers.

On the first day, January 29, thunder was heard from southward at intervals during the morning, and at 9h 30m a solar halo was seen. The sky became quite covered with heavy nimbus clouds soon after 13h, and at 14h 35m rain commenced to fall, lasting till 15h 5m, accompanied by occasional loud peals of thunder. The storm traveled from south to north-northeast passing slightly to the east of the observatory. The temperature began to fall before the sky was completely covered, and continued to do so until 14h 30m; at 13h 50m the wind veered from north to south, and was from southeast by south during the rain which fell from 14h 30m to 15h 5m.

On the second day the sky became covered with heavy nimbus clouds at 12h 0m, and very heavy rain fell from 12h 50m to 13h 10m. On this occasion the storm traveled from south-southwest to north-northeast, passing very nearly over the observatory; at the same time a second storm burst over the Ponce, a mountain 7 miles south by west of the observatory.

The fall of temperature during this storm was the greatest on record, viz, from 93.5° at 11h 25m to 72.0° at 12h 58m. Here also the fall commenced some minutes before the sky became covered.

The sunshine strip shows a continuous burned line up to 11h 53m, and a small spot at 12h 0m.

Between 11h 25m and 11h 35m, the wind veered from north-northeast to south, and was from the latter direction during the heavy rain which followed.

The registers are brought to the notice of meteorologists, with a view to obtaining further information on the effect of thunderstorms, and any such information will be much appreciated.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Journal de Physique. Paris. 3me série. Tome 9.
Brillouin, Marcel. Origine, variation et perturbations de l'électricité atmosphérique. P. 91.
Teisserenc de Bort. Étude de l'atmosphère dans la verticale par cerfs-volants et ballons-sondes. P. 129.

Scientific American. New York. Vol. 82.
Crafts, H. A. Snowfall and Water Supply of the Rocky Mountains. P. 133.

Annalen der Physik. Leipzig. Vierte Folge. Band 1.
Schwalbe, G. Uber die experimentalle Grundlage der Exner'schen theorie der Luftelectricität. P. 294.

Zeitschrift für Luftschiffahrt u. Physik der Atmosphäre. Berlin. 19 Jahrg.
Jacob, E. Forsetzung der Betrachtungen über eine kinetische Theorie der Luftbewegungen. P. 5.
Nimfuhr, R. Flugtechnische Betrachtungen (Schluss). P. 14.

Nature. London. Vol. 61.
Dexter, E. G. Drunkenness and the Weather. P. 365.
Marconi, G. Wireless Telegraphy. P. 377.
Wood, R. W. Effects of Lightning on Electric Lamps. P. 391.
Halm, J. Relation between the Periodic Changes of Solar Activity and the Earth's Motion. P. 445.
P., W. E. Applied Meteorology. P. 448.

La Nature. Paris. 28me Année.
Jaubert, J. L'Orage du 13 Février 1900. P. 210.

Naturwissenschaftliche Rundschau. Braunschweig. 15 Jahrg.
Fassig, O. L. Typen des März-Wetters in den Vereinigten Staaten. (Abstract American Journal Science). P. 94.

Das Wetter. Berlin. 17 Jahrg.
Kasner C. Der Mistral. P. 25.
Meinardus, W. Ueber der Methoden der Maritimen Klimatologie. P. 28.
Bornstein, R. Eine Verbesserung des telegraphischen Witterungsdienstes. P. 36.

Ciel et Terre. Bruxelles. 20me Année.
Vander Linden, E. Prévision du temps pour une période de plusieurs jours. P. 589.

Proceedings of the Royal Society. London. Vol. 66.
Sworn, S. A. Researches in Absolute Mercurial Thermometry: P. 86.

Gaea. Leipzig. 36 Jahrg.
Trabert, W. Die Bildung des Hagels. (Schluss). P. 207.

Symons's Meteorological Magazine. London. Vol. 35.
—— The Snow and Floods of February, 1900 [England]. P. 18.

Meteorologische Zeitschrift. Wien. Band 17.
Less, E. Ueber den täglichen Gang der Sommerregen bei verschiedenen Wetterlagen. P. 49.
Bergholz, P. Ueber Bildungsstätten, Bahnen und Zonen der Orkane des Fernen Ostens. P. 71.
Woeikof, A. Arktis und Antarktis. P. 75.
Woeikof, A. •Al. v. Tillo. P. 79.
Hann, J. Klima von Ponta Delgada. P. 80.
Hann, J. Ueber eine als möglich gedachte Ursache der Wirksamkeit des Hagelschiessens. P. 83.
Hann, J. Klimatabelle für Auckland (Neuseeland, Nordinsel). P. 84.
—— Einfluss der Grossen Seen auf den Niederschlag. P. 87.
—— Kohlensäuregehalt der Luft auf dem Montblanc. P. 87
—— Neue tägliche Wetterkarten. P. 88.
—— Das Vorkommen von Jod in der Atmosphäre. P. 88.

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of Señor Manuel E. Pastrana, Director of the Central Meteorologico-Magnetic Observatory, the monthly summaries of Mexican data are now communicated in manuscript, in advance of their publication in the Boletin Mensual. An abstract, translated into English measures, is here given, in continuation of the similar tables published in the MONTHLY WEATHER REVIEW since 1896. The barometric means have not been reduced to standard gravity, but this correction will be given at some future date when the pressures are published on our Chart IV.

Mexican data for February, 1900.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
	Feet.	*Inch.*	°*F.*	°*F.*	°*F.*	%	*Inch.*		
Colima	1,656	.....	86.4	59.2	.....	.....	.....	.....	.....
Culiacán Rosales (E. d. S.)	112	29.76	86.0	56.1	71.4	64	3.22	w.	.....
Durango (Seminario)	6 243	24.00	77.0	28.4	54.5	47	0.94	sw.	sw.
Leon (Guanajuato)	5,934	24.28	79.0	36.1	59.4	44	0.04	sw.	sw.
Mazatlan	25	29.96	95.4	52.0	75.7	65	0.79	se.	e.
Mexico (Obs. Cent.)	7,472	23.03	79.0	35.6	59.0	49	T.	s.	w.
Morelia (Seminario)	6,401	23.96	76.8	39.9	59.7	54	.....	sw.	sw.
Puebla (Col. Cat.)	7,112	23.86	75.4	39.2	61.5	60	T.	ene., e.	s.
Saltillo (Col. S. Juan)	5,399	24.74	76.3	25.2	52.3	58	0.98	s.	sw.
San Isidro (Hac. de Guanajuato)	.....	.....	69.4	56.8	.....	.....	T.	w.	.....
Silao	6,068	24.26	74.5	44.2	61.5	47	0.23	w.	w.
Zapotlan	5,078	25.09	82.0	44.6	62.8	50	0.08	sw.	w.

EARTHQUAKES AT CARSON CITY, NEV.

By Prof. CHARLES W. FRIEND.

According to a letter recently received from Prof. Charles W. Friend, the geographical position of his private observatory at Carson City, Nev., is latitude N. 39° 9′ 47.2″, and longitude W. 119° 45′ 42.9″. The altitude above sea level is 4,660 feet. The observatory is well furnished with a 5-inch refractor by Clark, a 3-inch transit by Troughton and Simms, a chronograph by Fauth, sideral clock, chronometers, sextants, and astro-photographic apparatus.

The seismograph is a duplex pendulum pattern from designs by Prof. J. A. Ewing. Meteorological records have been kept tridaily at 7 a. m., 2 p. m., and 9 p. m., Pacific standard time, since 1880. In the following list of earthquakes the scale of terms used in the 6th column is that known as the Rossi-Forel scale, which reads as follows:

THE ROSSI-FOREL SCALE.

I.—Microseismic shock, recorded by a single seismograph, or by seismographs of the same model, but not putting seismographs of different patterns in motion. Reported by experienced observers only.

II.—Shocks recorded by several seismographs of different patterns. Reported by a small number of persons who are at rest.

III.—Shocks reported by persons at rest. Duration or direction noted.

IV.—Shocks reported by persons in motion. Shaking of movable objects, doors and windows, cracking of ceilings.

V.—Shock generally felt by every one; furniture shaken, some bells rung.

VI.—General awakening of sleepers; general ringing of bells; swinging of chandeliers; stopping of clocks; visible swaying of trees; some persons run out of buildings.

VII.—Overturning of loose objects; fall of plaster; striking of church bells; general fright; without damage to buildings.

VIII.—Fall of chimneys; cracks in walls of buildings.

IX.—Partial or total destruction of some buildings.

X.—Great disasters; overturning of rocks; fissures in the surface of the earth; mountain slides.

Earthquakes observed at Carson City, Nev.

Year.	Month and date.	Time, Pacific standard.	Motion.	Intensity, Rossi-Forel scale.	Remarks.
1875	Jan. 24	4.00 a. m.	ne. sw.	.....	One light and one sharp shock.
	Dec. 3	3.00 p. m.	.....	.....	Light.
1877	July 9	11.00 p. m.	n. s.	.....	Do.
1881	Oct. 21	6.41 p. m.	n. s.	.....	Two light shocks.
	Nov. 9	10.08 a. m.	n. s.	.....	Sharp shock, lasting 2 seconds.
1883	July 1	3.00 a. m.	.....	.....	Light.
	Aug. 19	2.55 a. m.	.....	.....	Three light shocks.
1884	April 11	2.10 p. m.	nw. se.	IV	Principally vertical.
1887	June 3	2.48 a. m.	sw. ne.	VIII	Very severe, lasting 6 to 70 seconds, rotary motion preceded by a noise like thunder; stone and brick walls cracked, plaster shaken down, etc.
	June 18	1.20 a. m.	.....	.....	Two light shocks.
1888	Jan. 29	10.45 p. m.	sw. ne.	III	
	April 13	7.33 p. m.	sw. ne.	.....	Light.
	April 28	8.47 p. m.	s. n.	IV	Lasting 5 to 6 seconds.
	May 27	1.50 a. m.	s. n.	.....	Light, followed by quite heavy shock 20 seconds later.
1889	June 19	10.00 p. m.	s. n.	II	Light.
	Oct. 15	4.30 a. m.	e. w.	II	Do.
	Dec. 14	5.30 a. m.	e. w.	II	Do.
1890	April 24	D. N.[1]		I	Light (from seismometer.)
1892	Feb. 23	D. N.[1]		I	Do.
	Mar. 26	{Bet. 7 a. m. and 6 p. m.	{ e. w.	.....	Light tremors all day.
	April 19	2.51 a. m.	e. w.	VI	Gentle, but large movement, stopped sideral and meridian time clocks in observatory.
	April 21	9.44 a. m.	e. w.	VI	
	April 21	7.17 p. m.	e. w.	IV	
	April 23	5.30 p. m.	sw. ne.	II	
	April 29	4.08 p. m.	se. nw.	III	
	May 28	D. N.[1]	.....	I	Light (from seismometer.)
	July 6	7.00 a. m.	e. w.	II	Light.
	July 22	6.50 a. m.	se. nw.	II	Do.
1893	Mar. 2	12.05 a. m.	e. w.	II	Do.
	Mar. 2	6.40 a. m.	e. w.	II	Do.
	Mar. 30	D. N.[1]	ne. sw.	I	Tremor (from seismometer.)
	Dec. 11	3.10 p. m.	e. w.	I	Do.
1894	Nov. 10	6.55 p. m.	e. w.	II	Light.
	Nov. 15	11.07 p. m.	e. w.	I	Do.
	Nov. 15	11.25 p. m.	e. w.	II	Do.
	Nov. 15	12 midn't.	e. w.	II	Do.
	Nov. 18	2.38 a. m.	e. w.	I	Tremor (from seismometer.)
	Nov. 18	2.40 a. m.	e. w.	I	Do.
	Nov. 18	2.49 a. m.	e. w.	III	Sharp shock.
	Nov. 18	5.15 a. m.	e. w.	I	Tremor.
	Nov. 18	5.33 a. m.	e. w.	I	Do.
	Nov. 18	7.22 a. m.	e. w.	I	Do.
	Nov. 21	D. N.[1]	.....	I	Tremor (from seismometer.)
	Nov. 24	10.03 p. m.	sw. ne.	II	Light.
	Nov. 24	11.22 p. m.	sw. ne.	III	Sharp shock.
	Dec. 4	9.39 p. m.	.....	I	Tremor.
	Dec. 18	9.09 p. m.	sw. ne.	III	Sharp shock.
1896	Jan. 25	4.45 a. m.	e. w.	.....	Light.
	Jan. 25	4.46 a. m.	e. w.	.....	Do.
	Jan. 25	5.02 a. m.	e. w.	.....	Do.
	Jan. 27	7.59 a. m.	s. n.	II	Light, and a number of light tremors.
	Jan. 27	8.34 a. m.	w. e.	III	Do.
	Jan. 27	11.04 a. m.	sw. ne	III	Do.
	Jan. 27	11.19 a. m.	sw. ne.	I	Do.
	Jan. 27	1.01 p. m.	sw. ne.	IV	Do.
	Jan. 27	6.32 p. m.	sw. ne.	II	Do.
	Mar. 19	4.01 a. m.	.....	.....	Light.
	Mar. 20	11.25 p. m.	.....	.....	Do.
1897	May 15	11.05 p. m.	sw. ne.	III	
	May 21	1.50 p. m.	sw. ne.	III	
	June 20	12.15 p. m.	sw. ne.	IV	Stopped four clocks in United States Government building.
	July 5	6.52 p. m.	.....	.....	Tremor.
	July 11	12.15 a. m.	.....	.....	Do.
	Oct. 14	10.30 a. m.	sw. ne.	II	
1898	Mar. 13	7.34 a. m.	sw. ne.	II	
	Mar. 30	11.45 p. m.	sw. ne	IV	

[1] During night.

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made partly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.

Meteorological observations at Honolulu, February, 1900.

The station is at 21° 18′ N., 157° 50′ W.

Pressure is corrected for temperature and reduced to sea level, and the gravity correction, —0.06, has been applied.

The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual, in which case the extremes are given. The scale of wind force is 0 to 12, or Beaufort scale. Two directions of wind, or values of wind force or amounts of cloudiness, connected by a dash, indicate change from one to the other.

The rainfall for twenty-four hours has always been measured at 10:29 p. m., not 1 p. m., Greenwich time, on the respective dates.

The rain gage, 8 inches in diameter, is 1 foot above ground. Thermometer, 9 feet above ground. Ground is 43 feet, and the barometer 50 feet above sea level.

Date.	Pressure at sea level.	Temperature.		During twenty-four hours preceding 1 p. m., Greenwich time, or 2:29 a. m., Honolulu time.								
				Temperature.		Means.		Wind.		Average cloudiness.	Sea-level pressures.		Total rainfall at 9 a. m., local time.
		Dry bulb.	Wet bulb.	Maximum.	Minimum.	Dew-point.	Relative humidity.	Prevailing direction.	Force.		Maximum.	Minimum.	
	*	†	†			‡	‡		§				
1	30.03	68	63	74	64	60.7	69	ne.	5	8	30.09	29.98	0.11
2	30.01	70	62	77	67	59.0	64	ne.	4	2	30.08	29.99	0.01
3	29.94	62	60	78	68	58.3	60	ne.	4-2	1	30.06	29.97	0.00
4	29.85	70	65	78	61	60.3	73	s-sw.	1	0-2	29.98	29.85	0.15
5	29.90	65	62	73	63	65.7	87	s-w.	2	10	29.89	29.80	0.53
6	29.97	68	64	73	64	61.0	78	nne.	0-4	10	30.05	29.95	0.00
7	29.94	70	64.5	73	65	62.0	75	nne.	5-1	8	30.03	29.92	0.07
8	29.84	68	65.5	76	66	62.0	73	nne.	3	4-7	29.98	29.84	0.20
9	29.82	63	62	77	65	64.0	80	nne.	2-0	6-0	29.85	29.74	0.00
10	29.83	63	62	79	62	64.0	81	se.	2	1-3	29.87	29.78	0.00
11	29.97	64	56.5	77	62	63.5	82	w-n.	2	7-0	29.97	29.83	0.02
12	29.99	56	53.5	74	62	51.7	57	nw-n.	2	1-0	30.02	29.93	0.00
13	29.96	58	56	75	55	53.0	66	n-s.	2-0	1-0	30.03	29.90	0.00
14	29.96	59	57	75	57	57.7	75	w.	1-0	2-0	30.02	29.90	0.00
15	29.99	68	61.5	77	58	58.7	71	s-n.	1	5-0	30.02	29.91	0.00
16	30.05	67	58	72	65	56.3	56	nne.	3-6	4-9	30.06	29.97	0.00
17	30.05	70	62.5	74	66	54.0	58	ne.	5	4-1	30.09	29.99	0.00
18	30.15	72	67	79	66	61.5	67	ne.	4	1	30.16	30.03	0.03
19	30.14	64	62	79	71	63.3	70	ne.	3-0	8-1	30.22	30.08	0.00
20	30.09	65	61.5	79	62	61.0	72	w-n.	2-0	4	30.18	30.06	0.00
21	29.99	64	62	80	60	61.0	69	ne-sw.	2-0	4-2	30.12	29.99	0.00
22	30.00	65	62.5	78	62	60.7	70	sw.	1	1-10	30.06	29.94	0.00
23	30.09	71	65	82	64	58.3	61	s-se-ne.	1	5-2	30.12	30.02	0.00
24	30.07	64	61.5	82	66	62.3	67	nne.	2	2-7-0	30.16	30.02	0.00
25	30.01	65	63	80	63	63.5	78	sw-ne.	2-0	1-8	30.09	29.99	0.01
26	30.00	71	64.5	80	64	62.3	70	ne.	3	3	30.06	29.95	0.00
27	30.02	71	63.5	79	71	60.7	62	ne.	3	3	30.07	29.97	0.00
28	30.01	68	62.5	80	67	60.8	64	ne.	3	2-5	30.07	29.97	0.01
Sums..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.14
Means.	29.99	66.2	61.8	77.3	63.9	60.2	70.0	.....	2.3	3.7	30.050	29.938	.....
Departure..	+.04	.....	.....	.....	.....	—2.3	—5.0	.....	.....	—1.2	.....	.....	—4.86

Mean temperature for February, 1900 (6+2+9)+3=70.5°; normal is 70.6°. Mean pressure for January (9+3)+2 is 29.991; normal is 29.949.

*This pressure is as recorded at 1 p. m., Greenwich time. †These temperatures are observed at 6 a. m., local, or 7:29 p. m., Greenwich time. ‡These values are the means of (6+9+2+9)+4. §Beaufort scale.

KITE OBSERVATIONS AT BAYONNE, N. J.

By the Bayonne Kite Club.

The secretary of the Bayonne kite corps, under date of February 19, submits the accompanying table showing the thermometric records and other data accumulated by the corps during the past six months, in continuation of the record published in the MONTHLY WEATHER REVIEW for June, 1899, p. 251. The columns 12 to 15 here given were compiled by the Records Division. The altitudes given in the 5th column show a decided gain in the heights from which records are obtained. In ascension No. 118 the record for 1,000 feet is given hourly beside the record for 2,000 feet made by a second thermometer. This was accomplished by means of the kite line transit carrier car. A record was also kept of the electrical phenomena on the kite wire.

The secretary of the club says:

We are using the American-Malay kite with no alteration except in method of construction, this type being more efficient in our hands than the box kite, and has the advantage of being more portable. During this year the only loss we have sustained has been the breaking away from the main line of one 7-foot kite, and flights have been made under all possible conditions, from the blizzard of February 12, 1899, to the sudden thunderstorms of midsummer.

In order to obtain the greatest possible altitude with the smallest amount of wire, it has been found that tandem lines should be bunched at the top of the main line in what we have termed the "bouquet" system. If kites are placed at intervals along the main line, the head of the line will not attain more than two-thirds the altitude reached by the bouquet system. Thus with 4,500 feet of wire the bouquet system reached an altitude of 2,785 feet.

For some months we have been using a carrier system on our main line. This has been a matter of experiment with us for three years back. By its use, we are now taking records every hour or half hour during ascensions, which is especially interesting for night work. We hope thus to take records from sunset to sunrise. In this carrier system, we first establish one line up to the altitude at which we wish to work; then a second line is sent up with one or two small kites to about 300 feet. This second line is attached to the carrier car, which is placed on the main wire. This car has two grooved wheels resting on the wire and two below that are trollies and are held closely to the wire from the under side, by means of strong elastic bands. Thus the carrier is held to the main wire under all circumstances. The Six's thermometer is then suspended under the car, the trailing line is attached, and the supplemental kites take the car rapidly up the main line with great steadiness. In a wind of 12 miles per hour we can, with one 6-foot towing kite, send a thermometer up 1,000 feet in two minutes and can bring the thermometer back for record in about the same time. This system is far superior to using halyards since much higher altitudes can be attained and there is no depression of the main line. We are using this system for all forms of kite work; thus we take a dozen photographic views while one is being taken by the old system.

For records of temperature we will shortly have in the service a thermograph designed by Mr. H. Norton Lay, of Bayonne, that will give us a continuous record. It may not be so convenient as a Richard, but can be constructed for one-tenth the cost.

Our work is done in a suburban city that is rapidly building up, and large vacant lots are not so easily secured. We are on the end of a peninsula and our kites are as often over water as over land; northerly winds and 5,000 feet of wire let out will place our kites across the Kill Van Kull and over Staten Island.

TABLE 1.—*Kite ascensions made at Bergen Point, Bayonne, N. J., by the Bayonne kite corps.*

Number.	Ascension. Date.	Ascension. P. M. Began.	Ascension. P. M. Ended.	Kite record. Altitude.	Kite record. Temperature. Max.	Kite record. Temperature. Min.	Local conditions. Temperature. Beginning.	Local conditions. Temperature. Ending.	Local conditions. Wind.	Local conditions. Sky.	New York. Temperature. Beginning.	New York. Temperature. Ending.	New York. Winds during ascensions. Direction.	New York. Winds during ascensions. Velocity.	Average daily temperature at the Bergen Point (Bayonne) station.* Same day.	Second day.	Third day.
1	2	3 H. M.	4 H. M.	5 Feet.	6 °	7 °	8 °	9 °	10	11	12 °	13 °	14	15 Miles.	16 °	17 °	18 °
91	July 15, 1899	8 20	9 30	400[a]	78	74	73	73	sw.	Cloudy.	74	73	s.	14	75	79	79
92	July 22, 1899	8 12	9 20	600	73	68	73	71	ne.	Partly cloudy.	74	72	ne.	20	83.5	60.5	66
93	August 12, 1899	8 30	9 30	1,124	71	69	71	68	se.	Cloudy.	73	71	se.	9	73	78.5	70
94	August 19, 1899	8 30	10 00	918	75	74	75	74	ne.	Cloudy.	74	72	e.	4	75.5	78	81.5
95	August 28, 1899	8 15	9 45	750	66	61	66	62	nne.	Clear.	69	69	se.	8	70.5	69	70.5
96	September 7, 1899	8 35	10 00	1,850	65	58	65	60	se.	Clear.	66	65	s.	15	64	74	70
97	September 9, 1899	8 45	10 30	1,580	69	66	69	67	nw.	Clear.	71	70	n.	6	70	65	64
98	September 13, 1899	8 26	9 50	1,632	62	58	62	60	nw.	Clear.	64	63	w.	7	66.5	57.5	58
99	September 14, 1899	9 05	10 15	1,080	56	53	56	54	nw.	Clear.	57	55	nw.	11	57.5	58	60
100	September 15, 1899	8 37	10 16	1,100	59	53	59	56	nw.	Clear.	64	62	e.	8	58	60	63
101	September 16, 1899	8 20	10 30	1,791	58	52	58	55	se.	Partly cloudy.	62	62	s.	9	60	63	65.5
102	September 25, 1899	8 23	9 53	1,005	70	67	70	69	se.	Cloudy.	69	69	se.	25	70	69	54
103	October 4, 1899	8 35	10 12	1,093	56	51	56	54	sw.	Clear.	56	54	sw.	8	52	57	56.5
104	October 7, 1899	8 26	10 16	1,972	53	48	53	50	nw.	Clear.	59	57	ne.	10	56.5	54	55.5
105	October 16, 1899	8 10	9 50	1,350	59	51	59	57	ne.	Cloudy.	62	62	e.	10	60	64.5	72
106	October 23, 1899	8 25	9 45	993	60	57	60	59	sw.	Partly cloudy.	64	63	sw.	8	61	62	64
107	October 28, 1899	9 00	9 15	500	66	65	66	66	ssw.	Cloudy.	64	64	s.	19	62.5	63	54.5
108	November 7, 1899	8 30	4 10	250[a]	55	54	55	55	wsw.	Clear.	52	52	w.	8	45	48.5	51
109	November 14, 1899	8 30	9 30	550[a]	33	30	33	32	ne.	Cloudy (rain).	36	35	ne.	12	35.5	40	49.5
110	November 20, 1899	8 15	9 35	640	40	37	40	39	nw.	Clear.	41	39	nw.	13	47	42.5	47.5
111	November 22, 1899	8 32	9 50	890	52	49	52	50	sw.	Cloudy.	53	53	nw.	13	47.5	45.5	42
112	November 28, 1899	8 12	10 05	2,100	43	36	43	41	sw.	Partly cloudy.	46	45	s.	9	42	45	47.5
113	December 2, 1899	9 40	10 22	450	41	41	41	39	wsw.	Clear.	45	44	w.	8	44.5	47	40.5
114	December 11, 1899	8 35	10 20	1,975	54	48	54	51	w. by n.	Partly cloudy.	54	54	s.	34	50	57.5	47.5
115	December 14, 1899	8 25	9 30	680	40	37	40	39	s.	Partly cloudy.	41	41	e.	12	38.5	39	28.5
116	December 15, 1899	8 40	9 55	575	30	27	30	29	nw.	Clear.	29	27	nw.	30	39	28.5	33.5
117	December 18, 1899	8 15	9 35	734	40	37	40	39	sse.	Cloudy.	44	45	s.	6	40	47	38.5
118	December 19, 1899	7 30	12 15[d]	2,000	41	30	41	36	nw.	Cloudy.	41	37	w.	27	47	38.5	39
a	do	8 00	.....	1,000	.....	37	40	.....	.....	.....	41	.....	w.	22	.....	.....	.....
b	do	9 00	.....	1,000	.....	35	39	.....	.....	.....	41	.....	w.	31	.....	.....	.....
c	do	10 00	.....	1,000	.....	35	38	.....	.....	.....	40	.....	nw.	33	.....	.....	.....
d	do	11 00	.....	1,000	.....	33	38	.....	.....	.....	38	.....	w.	30	.....	.....	.....
e	do	12 00[e]	.....	1,000	.....	36	36	.....	.....	.....	37	.....	n.	21	.....	.....	.....
119	December 24, 1899	8 42	10 05	500	45	44	44	44	sse.	Cloudy.	45[f]	45[f]	e.	18	41	50.5	29.5
120	December 27, 1899	8 27	9 55	1,010	26	22	26	24	wsw.	Cloudy (snow).	26	25	w.	13	25.5	25	22.5
a	do	9 45	9 00[b]	500	26	24	.....	.....	wsw.	.....	26	26	nw.	12	.....	.....	.....
121	December 30, 1899	8 23	10 50	2,097	12	7	12	10	nw.	Clear.	12	12	nw.	16	13	15	21.5

[a] The only ascensions where cord was used; piano wire used for all others. [b] Carrier car used; two thermometers. [c] Midnight. [d] A. M. [e] Mr. Willard W. Hotchkins. [f] Approximated.

The temperatures and winds at New York are furnished by Prof. A. J. Henry from continuous registers by Weather Bureau instruments at elevations of 120 and 360 feet, respectively, above sea level.

NOTES BY THE EDITOR.

CLIMATOLOGY OF ST. KITTS.

In the article on the above subject by Mr. William H. Alexander, published in the MONTHLY WEATHER REVIEW, Annual Summary, 1899, page 583, the mean temperatures and pressures are given without special information as to the hours of observation. In reply to a letter of inquiry from the Editor, Mr. Alexander reports as follows:

Local time was used throughout, but the hours varied. That is, the hours of observation were the same during the year, but were not the same for all the years. To be more specific:

In 1856 the barometer was read at 10 a. m. and the thermometer at 8 a. m., 12 noon, and 4 p. m. In getting the mean barometer the 10 o'clock readings were added and divided by the number of days in the month. The temperature mean was obtained by adding the 8 a. m. and the 4 p. m. readings and dividing the sum by twice the number of days in the month. The noon reading was ignored.

In 1857 the barometer was read at 10 a. m. and the mean obtained as explained above. Only the maximum and minimum temperatures were recorded during this year, and the mean was obtained by dividing by two the sum of the mean maximum and the mean minimum.

From 1858 to 1867, inclusive, the barometer and thermometer were read at the same hours, viz, 8 a. m., 12 noon, and 4 p. m. The means were obtained as explained under 1856 relative to temperature mean.

In 1868 the barometer and thermometer were read at 10 a. m. and 2

p. m., and the means were obtained by dividing the sum of the readings by twice the number of days in the month.

In 1869–1882, inclusive, both instruments were read at 9 a. m. and 2 p. m., and the mean obtained as just explained.

In 1892–93–94 readings were made at 10 a. m. and 3 p. m., and means obtained in the same manner as from the 9 a. m. and 2 p. m. readings.

In 1895–96–97 and to August, 1898, the readings were made at 9 a. m. and 3 p. m., and the means obtained as above explained. Subsequent readings were those of the United States Weather Bureau, and the time is known.

In regard to the hours suggested in the text, viz, 9 a. m. and 4 p. m., I will say that at the time I wrote I thought that those hours would give a good average temperature, but it now appears that 4 p. m. was a little too late; perhaps it would be more nearly correct to say 9 a. m. and 3 p. m.

METEOROLOGY IN ECUADOR.

A letter from the Director of the Meteorological Observatory of the National College, San Vincente of Guayas, located at Guayaquil, Ecuador, informs Professor Moore that on November 27, 1899, the college observatory and printing office were totally destroyed by fire. Therefore, for the present the publication of the monthly bulletin of the observatory must be interrupted. The new buildings are already in process of construction and will be occupied even before they are finished, so that both the observations and the bulletin will be resumed as soon as possible.

The Chief of the Weather Bureau expresses to the director his sympathy in this great loss and his admiration of the energy with which the damage is being repaired.

LECTURES AT FARMERS' INSTITUTES.

On February 21, Mr. Frank P. Chaffee, Section Director at Montgomery, Ala., by authority of the Chief of the Weather Bureau, attended the Negro Farmers' Conference held under the auspices of the Institute at Tuskegee, Ala. According to Mr. Chaffee's report it is estimated that fully 3,000 people attended the meeting, of whom about 800 were farmers, and many were owners of large tracts of land. They were mostly from Alabama, but twenty other States were represented, and Mr. Chaffee adds that "the meeting was one of the most enthusiastic and beneficial of its kind I have ever attended." Prof. Booker T. Washington presided over the Conference, and many topics of interest to the farmer were discussed. Professor Washington, after alluding to the good work the Weather Bureau is doing for the agricultural interests, and expressing his appreciation of the courtesy of the Chief of the Bureau in allowing one of its officials to attend the meeting, introduced Mr. Chaffee, who delivered an address, in the course of which he said:

It is Professor Moore's special desire that the Weather Bureau shall be made of the greatest practical benefit to the farmers, and he has, therefore, delegated me to come here to explain some of the ways in which this can be done. If there is any one class on which the country depends for its prosperity more than another, it is the farmer and planter—not the man of antiquated ideas and methods, who plants corn year after year on the same ground, merely because his father and his father's father did so, but the up-to-date, progressive farmer who diversifies his crops, and exercises the same degree of intelligence in his business as does the merchant, the mechanic, or any other worker. It is only in recent years that this branch of industry has commanded so much attention from the thinkers of the country, and only within the last decade that it has been the focus of so much intelligent thought.

The work of the Agricultural Department is so broad as to embrace every line of scientific research which can be made of practical benefit to the farmers. Some of its specialists analyze the soil, and determine what plant life is best adapted to it. Others investigate the storage of ground-water, the most economical methods of irrigation, the methods for preventing the spread of cattle diseases, and everything pertaining to the improvement of live stock. The Department also has its agents searching everywhere for new varieties of plants and seeds which can be domesticated with advantage and profit, while its thorough system of experiment stations brings before the farmer object lessons in the practical use of the intelligence thus accumulated.

You are all aware of the importance of knowing at some critical time in your work just what the weather will be to-morrow. To tell you this is the specific purpose of the Weather Bureau, and when it has spent money—*your money*—to place this intelligence before you, and you do not use it, then the loss and the blame are yours. If it be true, as claimed, that the farmers of the North and West are more successful than the farmers of the South, it is certainly not because their soil is any more fertile or their climate any more favorable. It is true, however, that they keep in intelligent touch with every source of information and are specially attentive to the forecasts and warnings of the Weather Bureau. A farming community in the Ohio Valley without the daily weather forecasts is almost unknown.

While it is true that occasionally the forecasts are not verified, still they are certainly the best obtainable information on the subject. Should you one time in ten prepare for a cold wave or frost that does not come, the very small expense thus incurred will be offset a thousand fold by the benefit derived from the other nine warnings. These forecasts are not the vague guessing of any benighted soothsayer or astrologer, but are the result of intelligent and prolonged scientific research and experience in correlating the daily weather changes of this country. In order that you may appreciate the thorough system by which the forecasts are brought directly to your knowledge, I propose to briefly review the manner in which the Weather Bureau collects its reports and makes and distributes its forecasts and warnings.

Mr. Chaffee then outlined in plain language the work of the Bureau as to distribution and instrumental equipment of stations, the complete system of collecting telegraphic reports, how the reports are charted and the forecasts of storms, cold waves, etc., made, and the method of quickly placing the information before the public. He explained the great benefit the recent flood warnings of the Bureau were to the farmers along the Alabama and Coosa rivers, and dwelt upon some of the best means of protecting crops from frosts. All were advised when they returned home to inquire for the daily forecasts that should be received at their postoffices, and that they will be furnished if the postmaster applies for them. Attention was directed to the value of the weekly climate and crop bulletins, the value of the work of the voluntary observers, and the importance of Weather Bureau records in cases where suit is brought for damage done by the weather.

On February 6, Mr. Charles E. Linney, Section Director for Illinois, delivered an address at Geneva, Ill., before the Farmers' Institute of Kane County, on the Weather Bureau and its work with special reference to agricultural conditions. By means of three large weather maps he showed the progress of storms, the methods of forecasting and by special maps for Illinois showed the location and number of voluntary observers and forecast displaymen. After talking thirty minutes he invited questions from the audience and the queries occupied about twenty minutes more. Some of those in the audience came to talk personally with Mr. Linney after the address was over. Many of these were voluntary observers and solicited special instructions relative to their instruments and records. Mr. Linney was followed by Mr. James Riley, of Thornton, Ind., with an address on culture of corn. He prefaced his remarks with a splendid indorsement of the work of the Bureau, giving half a dozen instances in which he had made valuable saving of time, seed, and crops by the use of the Weather Bureau forecasts.

A CHANGE AT KEW OBSERVATORY.

A circular, signed by R. T. Glazebrook, has been received by the Chief of the Weather Bureau announcing that the Kew Observatory, which has been famous in science for a hundred years, is to be hereafter known as the National Physical Laboratory, old Deer Park, Richmond, Surrey, England. At the request, and with the support of Her Majesty's Government, the National Physical Laboratory has been es-

tablished and the Royal Society of London has appointed an executive committee to manage it. The Kew Observatory and its work has been transferred to this new committee and the old Kew Observatory committee has terminated its existence. The chairman of the new executive committee is to be the president of the Royal Society ex officio. The vice chairman is Lord Rayleigh; other members of the committee represent the board of trade, the royal society, the Kew committee, the institutes of civil, mechanical, and electrical engineers, the iron and steel institute, the society of chemical industry, and the institute of naval architects.

The executive committee will continue and extend the work hitherto carried on at the Kew Observatory. Dr. Chree, the recent superintendent, and all the other members of the observatory staff will continue to serve under the the new committee. Prof. R. T. Glazebrook will be the director of the National Physical Laboratory. Arrangements will be made for the publication of the results of work done at this laboratory and exchanges of publications are invited.

THE LONDON METEOROLOGICAL OFFICE.

We copy the following from Nature of February 28, 1900:

On the 28th of February Mr. Robert H. Scott will retire from the post of Secretary to the Meteorological Council. At the end of the year 1899 Mr. Scott had completed thirty-three years of service in the Meteorological Office, and for the last twenty-five years has acted as secretary of the International Meteorological Committee, which honorary position, we understand, he will continue to hold until the next meeting of that committee in September. Mr. W. N. Shaw, F. R. S., Fellow of Emmanuel College, Cambridge, and hitherto Assistant Director of the Cavendish Laboratory and lecturer in physics in the University of Cambridge, has been appointed as successor to Mr. Scott. Mr. Shaw has been a member of the Meteorological Council since May, 1897, and will continue to hold that position in addition to that of secretary.

The appointment of Mr. Shaw as Secretary of the Meteorological Council and Superintendent of the Meteorological Office at London will be recognized by every one as demonstrating the high position meteorology has at last attained among the sciences cultivated in England. For a long time it has, we fear, been at the bottom of the list. Many a time we have been assured that its problems were too difficult for the analyst, and its relations with agriculture and mercantile affairs too intimate to free it from the sordid everyday relations that characterize business rather than science. But when now we see the finest physical laboratory of the nation relinquish its distinguished assistant director and encourage him to devote his energies to this most difficult branch of experimental and theoretical physics, we at once realize that under his guidance meteorology is certain to assume no second rank in England. The brilliant discoveries that have been made in the departments of chemistry and electricity have, for a generation past, given those branches of science a halo whose glory may have temporarily blinded young students to the attractiveness and importance of other branches, but we hope that a reaction has now set in, and that England's best talent will be devoted to the comprehensive study of the atmosphere. Many of the details have, indeed, been developed by Mr. Shaw's associates at Cambridge, by such men as Stokes and Maxwell, Forsyth, Darwin, Thomson, Dewar, Glazebrook, Larmor, Love, and Glaisher, but it now remains for him to combine all in one general work on the mechanics and physics of the atmosphere, as the special work of the London Meteorological Office.

MAXIMUM PRESSURE OF WIND.

A correspondent inquires whether any steps have been taken to record the maximum pressures of the wind and adds that 5-minute or 1-minute velocities do not determine the damaging force of the wind, which is a matter of a few seconds. We believe that it is now generally well recognized that the pressure of the wind and the damage it does depends not only on the velocity of the wind but on the shape of the obstacle against which it strikes. Gages for the measurement of pressure have, indeed, been devised and used for a century past, but their records do not give any satisfactory information as to the pressure against some other object located even a few yards away. In general, it would lead to great error if we should attempt to apply the pressure recorded at one spot to explain the damage done at another spot. To be sure, even the records of wind velocity are local and unsatisfactory, so that we can not apply them to the explanation of the damage done at some adjacent locality; but the pressure gages are even less reliable than the velocity gages; therefore it is that the Weather Bureau confines its work to the measurement of velocity by means of the Robinson anemometer.

If one wishes to know the pressure that produced damage in a specific case, he must experiment and calculate for that case specifically. No general apparatus, such as a square or circular pressure plate or spherical ball, can have any close bearing upon the problem. The pressure of the wind is a question in engineering and not in meteorology.

GEORGE JAMES SYMONS.

The sudden death of Mr. Symons on March 10, as the result of a stroke of paralysis on the evening of February 14, will be felt as a loss in meteorological circles wherever the science is cultivated. Mr. Symons was born August 6, 1838, and became interested in meteorological work as a lad. He served for a few years under Admiral Fitzroy in the meteorological department of the Board of Trade. In 1857 he started an organization for observing and recording thunderstorms and soon after began his great work on British rainfall. The first annual volume of the rainfall series contained records from 168 stations, for the year 1860, and the fortieth volume, which will soon be issued, will have about 3,500. In 1866 he began the publication of the Meteorological Magazine which still continues as supplementary to his British Rainfall. He was a very active member of all the British and foreign societies interested in meteorology. His library was extensive, and his contributions to the bibliography of meteorology form a large fraction of the titles contained in the bibliography published by the Signal Service. His great kindness and genial personality were known everywhere; he had the power of drawing around him a vast number of friends.

His devotion to meteorology is emphasized by the fact that his whole fortune has been left in trust to secure the continuation of British Rainfall in perpetuity and the responsibility for this work will now rest on Mr. H. Sowerby Wallis.

THE WEATHER OF THE MONTH.

By ALFRED J. HENRY, Professor of Meteorology.

GENERAL CHARACTERISTICS.

A wintry month, with much boisterous weather, yet not so severe as the corresponding month a year ago. There were a number of alternating periods of fair and stormy weather, and many marked temperature changes. In New England the heavy rains of the 13th relieved a rather severe and prolonged drought and caused the rivers and small streams to pass to a flood stage within a very short time.

A cold wave of considerable severity moved southeastward from the northeastern Rocky Mountain slope on the 15th, reaching the Florida Peninsula on the morning of the 18th and Cuba and Puerto Rico on the 19th and 20th. The minimum temperatures of the month in the South Atlantic and Gulf States were recorded during the progress of the cold wave.

About the average amount of snow fell, except in California and the southwestern part of the Plateau region.

PRESSURE.

The distribution of monthly mean pressure is graphically shown on Chart IV, and the numerical values are given in Tables I and II.

Mean pressure for the current month was below normal in the Lake region and thence southwesterly to Arizona. It was above normal in the upper Missouri Valley and thence westerly to the Pacific coast. Compared with the preceding month, mean pressure decreased from 0.1 inch and over in the central Rocky Mountain region to about 0.05 inch on the Atlantic coast. In this connection it should be noted that the majority of low area storms originated in the Southwest and passed out of the country by way of the Lake region. The dearth of north Pacific storms, especially those which move along the northern circuit across the Lake region, was rather unusual.

TEMPERATURE OF THE AIR.

The distribution of monthly mean surface temperature, as deduced from the records of about 1,000 stations, is shown on Chart VI.

A much colder month than the one immediately preceding, yet not so cold as February, 1899.

In the interior of the country and on the south Atlantic and Gulf coasts temperature was markedly below normal, the average daily deficiency in some districts being as much as 6°. West of the Rocky Mountains and in New England temperature was from 2° to 4° above normal. The cold wave of the 15–19th carried the line of freezing temperature to the lower third of the Peninsula of Florida on the 19th and brought the coldest weather of the month to Cuba and Puerto Rico. The temperature at Santiago de Cuba fell to 58° on the 19th, and snow fell on the mountains 10 miles distant. The lowest minimum temperatures registered at Weather Bureau stations in Cuba was 49° at Puerto Principe on the 20th and Cienfuegos on the 26th.

The cold wave of the 6–8th, although not so widespread as that of the 15–19th, was quite severe in the Northwestern States. The temperature changes were very great, falls of 50° in less than twenty-four hours, accompanied by high winds and driving snow, were experienced in the front of the cold wave in many localities.

In Canada.—Prof. R. F. Stupart says:

Temperature was above average in British Columbia, Quebec, the Maritime Provinces and the extreme eastern portion of Ontario, and below everywhere else. The greatest departure above average occurred in Cape Breton and Prince Edward Island, amounting to 7°, and the largest deficiency was reported at Prince Albert, amounting to 8°. In Manitoba, Winnipeg was 5° below average, while in northern Ontario Port Arthur was 5° below, and in southern Ontario, Port Stanley was 3° below.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	10	27.4	+ 0.2	+ 2.3	+ 1.2
Middle Atlantic	12	32.7	− 1.8	+ 0.4	+ 0.2
South Atlantic	10	45.6	− 4.0	− 4.2	− 2.1
Florida Peninsula	7	60.0	− 3.0	− 5.2	− 2.6
East Gulf	7	49.4	− 5.1	− 6.1	− 3.0
West Gulf	7	48.4	− 3.1	+ 0.3	+ 0.2
Ohio Valley and Tennessee	12	32.8	− 5.2	− 2.4	− 1.2
Lower Lake	8	28.3	− 3.2	0.0	0.0
Upper Lake	9	14.8	− 4.3	+ 2.3	+ 1.2
North Dakota	7	2.2	− 4.0	+10.6	+ 5.3
Upper Mississippi Valley	11	19.5	− 6.5	+ 1.7	+ 0.8
Missouri Valley	10	20.0	− 4.3	+ 5.8	+ 2.9
Northern Slope	7	19.5	− 1.3	+11.8	+ 5.9
Middle Slope	6	30.3	− 2.0	+ 6.8	+ 3.4
Southern Slope	6	39.6	− 1.5	+ 4.9	+ 2.4
Southern Plateau	13	43.5	+ 2.1	+ 8.8	+ 4.4
Middle Plateau	9	33.1	+ 4.3	+12.4	+ 6.2
Northern Plateau	10	30.3	+ 2.0	+12.0	+ 6.0
North Pacific	9	42.0	+ 3.4	+ 7.9	+ 4.0
Middle Pacific	5	51.2	+ 2.1	+ 4.8	+ 2.4
South Pacific	4	55.9	+ 2.5	+ 6.5	+ 3.2

PRECIPITATION.

Precipitation was above the average in eleven of the twenty-one geographic districts, about average in four and below average in the remainder. The month as a whole may be classed as a wet one, except in California and portions of the Ohio and lower Mississippi valleys. Precipitation was greatly in excess of the normal in New England, where destructive floods occurred on the 13th and 14th, and in northwestern Georgia and eastern Alabama. The drought in southern California, reported in the preceding month, continues and threatens to become serious.

The amount and distribution of snowfall is shown by tables and charts at the end of this REVIEW. Generally there was not as much snow as during the corresponding month a year ago. The deficit was most marked in the Plateau region and on the Pacific coast. The Upper Peninsula of Michigan and Wisconsin also received less snow, on the average, than fell in eastern Kansas and northern Missouri.

At the end of the month there was a good covering of snow on the ground in central and eastern Kansas, central Iowa, Missouri, northern Illinois, Michigan, northern Indiana, northern New York, and in Maine, New Hampshire, and Vermont. The lowlands and valleys of the Plateau region were rather destitute of snow for the season of the year.

In Canada.—Professor Stupart says:

Precipitation was below average throughout British Columbia, but elsewhere over the Dominion it was above average, except along the north shore of Lake Superior, and locally in the Northwest Territories and Manitoba. In many portions of Ontario, Quebec, and the Maritime Provinces the average amount was exceeded by from 2 to 3 inches. In British Columbia and the Maritime Provinces the precipi-

tation was largely rain, but in the other portions of Canada it was chiefly snow, several of the falls being decidedly heavy. On the last day of the month over the greater portion of Ontario the depth of snow on the ground was from 20 to 26 inches, and in Quebec and northern New Brunswick it was from 20 to 30 inches. Owing, however, to the heavy snowstorm which was in progress, the amount of snow on the ground on the 28th was considerably increased on March 1 over eastern Ontario and in Quebec. In the Qu'Appelle Valley the snow was 24 inches deep, but in the Territories and Manitoba, generally, it was from 2 to 14 inches in depth.

The total depth of snow for the month, and the amount on the ground at the end of the month are shown by Charts No. VIII and IX, respectively, and the numerical values appear in Table II.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		*Inches.*	*Inches.*
New England	10	5.77	162	+2.2	+2.6
Middle Atlantic	12	3.94	118	+0.6	−0.4
South Atlantic	10	4.38	116	+0.6	−0.3
Florida Peninsula	7	3.55	125	+0.7	+1.2
East Gulf	7	7.65	165	+3.0	+0.7
West Gulf	7	2.58	74	−0.9	−1.0
Ohio Valley and Tennessee	12	3.83	91	−0.4	−2.0
Lower Lake	8	3.96	143	+1.2	+1.1
Upper Lake	9	2.26	122	+0.4	−0.3
North Dakota	7	0.44	69	−0.2	−0.7
Upper Mississippi Valley	11	2.52	131	+0.6	0.0
Missouri Valley	10	1.63	123	+0.3	−0.3
Northern Slope	7	0.72	138	+0.2	−0.4
Middle Slope	6	1.00	125	+0.2	−0.4
Southern Slope	6	0.55	58	−0.4	−1.0
Southern Plateau	13	0.32	31	−0.7	−1.5
Middle Plateau	9	0.96	76	−0.3	−1.1
Northern Plateau	10	1.30	93	−0.1	−1.1
North Pacific	9	4.94	88	−0.7	−2.3
Middle Pacific	5	2.16	52	−2.0	−2.6
South Pacific	4	0.07	3	−2.6	−4.0

HAIL.

The following are the dates on which hail fell in the respective States:

Alabama, 29. Arizona, 7, 19. Arkansas, 4, 20, 21, 28. California, 4, 11, 18. Florida, 4. Georgia, 21. Idaho, 22. Illinois, 3. Indian Territory, 7, 27. Kentucky, 21. Louisiana, 3, 11, 24, 26, 27, 28. Mississippi, 16, 20, 28. Missouri, 3, 4. New Mexico, 7, 15. Oklahoma, 27. Oregon, 2, 6, 7, 8, 10, 11, 13, 14, 18, 19. South Carolina, 21. Tennessee, 8. Texas, 23, 27, 28. Washington, 5, 6, 12, 21, 28.

SLEET.

The following are the dates on which sleet fell in the respective States:

Alabama, 16, 24, 25. Arkansas, 10, 15, 16, 24, 28. Colorado, 6, 11, 13, 23. Connecticut, 25. Delaware, 10. Georgia, 3, 26, 28. Idaho, 11, 21, 22. Illinois, 3, 4, 23, 27, 28. Indiana, 3, 4, 8, 27, 28. Iowa, 3, 4, 7, 8, 14, 21. Kansas, 4, 7, 8, 12, 15, 25, 27. Kentucky, 21, 28. Louisiana, 8, 16, 19. Maine, 4, 5, 9, 12, 13, 22, 23, 25. Maryland, 6, 20, 21, 22, 24, 25, 28. Massachusetts, 4, 5, 8, 9, 22, 24, 25. Michigan, 4, 7, 9, 13, 21. Minnesota, 22. Mississippi, 10, 24, 28. Missouri, 3, 4, 7, 8, 14, 15, 22, 23, 26, 27, 28. Montana, 4, 9, 11, 20, 22, 26. Nebraska, 3, 4, 7, 23, 25. Nevada, 14, 22. New Hampshire, 5, 21, 22, 24, 25, 26. New Jersey, 6, 24. New York, 5, 13, 21, 22, 23, 24, 28. North Carolina, 9, 10, 11, 16, 17, 18, 21, 24, 25, 28. North Dakota, 22. Ohio, 3, 4, 21, 22, 24, 28. Oregon, 6, 7, 13, 14, 20. Pennsylvania, 4, 5, 9, 21, 22, 28. South Carolina, 10, 17, 28. Tennessee, 4, 10, 15, 16, 22, 24, 27. Texas, 11. Utah, 21, 22, 26. Vermont, 4, 17, 22, 25, 27, 28. Virginia, 6, 10, 11, 16, 22, 24, 25, 28. Washington, 2, 6, 12, 14, 18, 20, 21, 27. West Virginia, 4, 5, 12, 21, 22, 23, 24, 27, 28. Wisconsin, 5, 7, 8, 22, 24.

HUMIDITY.

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
	%			%	
New England	74	− 1	Missouri Valley	74	− 3
Middle Atlantic	73	− 1	Northern Slope	74	+ 5
South Atlantic	74	− 4	Middle Slope	66	0
Florida Peninsula	81	− 1	Southern Slope	59	−11
East Gulf	73	− 5	Southern Plateau	33	−15
West Gulf	70	− 3	Middle Plateau	52	−10
Ohio Valley and Tennessee	76	+ 2	Northern Plateau	74	− 4
Lower Lake	78	− 2	North Pacific Coast	83	− 2
Upper Lake	84	+ 3	Middle Pacific Coast	76	0
North Dakota	78	− 3	South Pacific Coast	69	− 2
Upper Mississippi	80	+ 3			

SUNSHINE AND CLOUDINESS.

The distribution of sunshine is graphically shown on Chart VII, and the numerical values of average daylight cloudiness, both for individual stations and by geographical districts, appear in Table I.

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	6.0	+0.5	Missouri Valley	5.8	+0.4
Middle Atlantic	5.9	+0.3	Northern Slope	6.0	+1.2
South Atlantic	5.8	+0.5	Middle Slope	4.7	+0.3
Florida Peninsula	4.8	+0.2	Southern Slope	4.0	−0.8
East Gulf	5.6	+0.1	Southern Plateau	2.3	−0.7
West Gulf	5.4	−0.4	Middle Plateau	5.5	+0.7
Ohio Valley and Tennessee	6.9	+0.7	Northern Plateau	7.1	+0.4
Lower Lake	7.2	+0.4	North Pacific Coast	7.6	+0.6
Upper Lake	6.2	−0.1	Middle Pacific Coast	5.0	+0.2
North Dakota	5.5	+0.4	South Pacific Coast	2.9	−1.2
Upper Mississippi	5.9	+0.6			

WIND.

The maximum wind velocity at each Weather Bureau station for a period of five minutes is given in Table I, which also gives the altitude of Weather Bureau anemometers above ground.

Following are the velocities of 50 miles and over per hour registered during the month:

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Abilene, Tex	20	58	w.	El Paso, Tex	19	55	sw.
Amarillo, Tex	7	60	n.	Hatteras, N. C	25	57	w.
Do.	8	52	n.	Havre, Mont.	6	54	ne.
Do.	23	60	n.	Independence, Cal	26	66	s.
Do.	27	60	n.	Indianapolis, Ind	8	54	sw.
Block Island, R. I	18	68	n.	Jacksonville, Fla	28	50	s.
Buffalo, N. Y	25	65	w.	Mount Tamalpais, Cal.	7	51	n.
Carson City, Nev	14	60	w.	Nantucket, Mass	18	59	n.
Cheyenne, Wyo	11	51	w.	New York, N. Y	5	70	w.
Chicago, Ill	8	70	sw.	Norfolk, Va	21	52	se.
Do.	28	52	ne.	Oswego, N. Y	22	50	se.
Cleveland, Ohio	9	54	w.	St. Louis, Mo	8	59	sw.
Do.	13	57	w.	Salt Lake City, Utah	6	60	n.
Do	25	54	w.	Sioux City, Iowa	8	50	nw.
Denver, Colo	11	53	nw.	Winnemucca, Nev	6	60	w.
Duluth, Minn	8	54	nw.	Woods Hole, Mass	18	72	nw.
Eastport, Me	18	64	ne.				

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table VII, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—Reports of 703 thunderstorms were received during the current month as against 708 in 1899 and 266 during the preceding month.

The dates on which the number of thunderstorms for the whole country were most numerous were: 8th, 97; 24th, 85; 21st, 69; 7th, 62.

Reports were most numerous from: Louisiana, 84; Mississippi, 53; Arkansas, 52.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, 9th to 17th.

Reports were most numerous from Illinois, Montana, and Ohio, 3.

In Canada.—Auroras were reported as follows: Minnedosa, 3d, 5th, 9th, 10th, 21st, 27th; Qu'Appelle, 4th; Medicine Hat, 20th, 21st; Swift Current, 4th; Battleford, 3d, 5th, 22d, 25th.

A thunderstorm was reported from Hamilton, Bermuda, on the 23d.

DESCRIPTION OF TABLES AND CHARTS.

By ALFRED J. HENRY, Professor of Meteorology.

For description of tables and charts see page 26 of REVIEW for January, 1900.

TABLE 1.—*Climatological data for Weather Bureau Stations, February, 1900.*

Stations.	Elevation of instruments.			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.											Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.			Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Mean actual, 8 a. m. + 8 p. m. + 2.	Mean reduced.	Departure from normal.	Mean max. + mean min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.						Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.					
New England.																																
Eastport	76	69	74	29.86	29.95	— .01	27.4	+ 0.2	35	25	29	—11	27	16	35	30	16	76	5.77	+ 2.2											6.0	
Portland, Me	103	81	89	29.83	29.94	— .07	22.5	+ 0.5	50	13	30	— 8	27	16	36	21	16	74	4.51	+ 0.8	16	10,490	w.	64	ne.	18	8	8	12	6.2	15.5
Northfield	876	15	65	29.00	30.01	— .05	23.4	— 1.2	49	13	26	—24	27	16	40	14	10	80	9.25	+ 5.8	14	6,692	nw.	44	se.	13	11	7	10	5.3	25.8
Boston	125	115	181	29.84	29.98	— .06	16.2	+ 0.2	50	13	26	— 4	27	22	32	26	19	68	6.83	+ 3.3	13	6,453	s.	48	sw.	13	5	9	14	7.0	22.6
Nantucket	12	43	54	29.96	29.97	— .07	29.3	+ 1.3	60	13	36	0	27	25	36	29	24	76	4.32	+ 2.2	13	9,761	w.	46	nw.	5	9	4	15	6.1	9.0
Woods Hole	22	11	57	29.96	29.98	— .06	31.2	+ 0.2	54	13	38	0	27	24	36	28	24	79	4.86	+ 2.0	17	10,490	nw.	59	n.	18	5	5	18	6.0	16.1
Vineyard Haven	.....	20	55	.....	.....	.....	30.4	+ 0.7	52	13	37	0	27	24	32	.....	.....	.....	6.37	+ 3.2	11	12,892	nw.	72	nw.	18	10	3	15	7.2	19.8
Block Island	26	11	70	29.96	29.99	— .07	31.4	— 0.9	54	13	39	0	27	24	32	28	22	71	4.48	+ 0.1	11	8,395	nw.	48	se.	22	8	8	12	6.2	8.9
Narragansett	.....	10	.....	.....	.....	.....	31.0	+ 0.2	56	13	37	— 2	27	21	37	.....	.....	.....	5.52	+ 1.0	9	15,249	w.	68	n.	18	6	11	11	6.1	4.4
New Haven	106	117	140	29.88	30.00	— .08	29.0	— 0.1	53	13	37	— 2	27	21	36	26	19	66	6.39	+ 2.3	9	.....	w.	....	.....	...	15	4	9	....	5.0
Mid. Atlan. States.							29.4	+ 0.6	55	13	38	— 1	27	21	36	26	19	66	3.94	+ 0.6		7,612	w.	44	e.	22	14	7	4	4.1	9.0
Albany	97	84	113	29.91	30.02	— .03	32.7	— 1.3											2.84	— 0.2	11	6,163	w.	46	e.					5.9	
Binghamton	875	79	90	.....	.....	.....	25.6	+ 1.4	58	13	34	— 4	27	17	31	22	18	76	2.65	— 0.2	15	6,371	nw.	33	s.	22	6	12	10	6.0	9.6
New York	314	108	346	29.66	30.02	— .09	24.8	+ 0.9	56	13	33	— 4	27	17	32	.....	.....	.....	5.16	+ 1.4	11	14,505	nw.	70	w.	24	4	6	18	7.5	4.7
Harrisburg	374	94	104	.....	.....	.....	31.6	+ 0.1	58	13	39	4	27	24	37	28	23	72	3.40	+ 0.6	12	7,109	w.	40	w.	5	10	4	14	5.8	11.4
Philadelphia	117	168	184	29.92	30.04	— .08	29.4	— 3.1	53	13	36	3	27	23	33	31	.....	.....	3.71	+ 0.5	12	7,560	nw.	40	se.	22	8	6	14	6.4	3.4
Atlantic City	52	68	76	29.98	30.04	— .04	32.4	— 1.1	60	13	40	6	27	25	30	29	25	77	3.27	— 0.1	11	1,105	w.	44	w.	25	8	11	9	6.4	12.1
Cape May	17	47	51	30.04	30.06	— .03	32.2	— 1.7	56	13	39	7	27	24	30	29	24	72	3.53	— 0.3	11	8,008	w.	38	se.	5	5	15	8	5.3	12.1
Baltimore	123	68	82	29.91	30.04	— .08	33.4	— 2.3	54	13	40	10	27	25	32	30	24	71	4.65	+ 1.2	13	4,547	w.	30	w.	5	5	15	8	6.2	7.5
Washington	112	50	76	29.98	30.06	— .06	33.1	— 3.1	65	13	41	8	1	25	47	29	23	70	5.26	+ 1.9	12	5,957	nw.	40	nw.	18	7	6	18	6.5	13.0
Cape Henry	.....	5	34	.....	.....	.....	33.7	— 2.1	69	13	44	6	2	24	37	.....	.....	.....	5.03	+ 1.5	13	10,565	sw.	49	w.	17	8	10	10	5.2	15.9
Lynchburg	681	83	88	29.28	30.05	— .08	40.4	— 3.5	71	13	49	15	1	32	37	31	25	69	4.38	+ 0.8	12	3,594	nw.	32	nw.	5	11	9	8	5.8	5.0
Norfolk	91	102	111	29.97	30.07	— .05	35.7	— 4.3	69	8	45	9	1	26	36	31	25	69	3.75	— 0.1	13	8,562	s.	32	se.	21	12	6	10	5.2	0.5
Richmond	144	98	105	.....	.....	.....	40.1	— 2.7	70	8	47	10	1	28	31	31	26	74	4.42	.....	14	5,277	sw.	32	se.	24	10	10	8	5.1	6.2
S. Atlantic States.							37.6	.....	70																				5.8	
Charlotte	773	68	76	29.21	30.07	— .05	45.6	— 4.0											4.33	+ 0.6									6.0	0.1
Hatteras	11	17	36	30.05	30.06	— .04	39.5	— 5.5	65	8	50	9	18	29	30	34	28	66	5.25	+ 0.7	14	5,885	ne.	42	w.	21	10	3	15	5.6	
Kittyhawk	8	12	30	.....	.....	.....	44.4	— 2.2	68	12	51	20	1	38	29	42	39	80	6.03	+ 1.6	12	12,063	n.	57	w.	35	10	8	10	5.6	
Raleigh	376	98	101	29.67	30.09	— .08	42.8	— 3.2	68	9	51	14	1	35	34	.....	.....	.....	4.80	+ 1.0	8	11,070	.....	....	.....	...	12	5	11	5.5	
Wilmington	78	82	90	30.00	30.09	— .02	40.0	— 3.9	71	13	50	11	1	30	38	36	31	74	4.56	+ 0.8	13	5,300	sw.	28	sw.	13	9	7	12	5.7	0.3
Charleston	48	14	92	30.06	30.11	— .01	45.4	— 4.4	75	8	54	17	18	36	32	41	37	76	2.69	— 0.5	10	7,060	nw.	36	nw.	25	10	8	10	5.2	T.
Columbia	.....	5	.....	.....	.....	.....	49.1	— 3.7	75	13	57	19	18	41	30	43	37	69	2.31	— 1.0	11	8,235	w.	40	sw.	4	7	9	12	6.1	T.
Augusta	180	89	108	29.88	30.08	— .03	44.4	— 4.8	71	8	55	12	18	34	41	.....	.....	.....	5.93	+ 1.8	11	.....	nw.	....	.....	...	9	5	14	6.5	0.5
Savannah	65	79	89	30.02	30.08	— .06	46.0	— 4.4	73	8	56	13	18	36	32	40	34	69	6.42	+ 2.5	13	5,626	w.	39	sw.	22	9	6	13	6.0	
Jacksonville	43	69	84	30.04	30.09	— .02	50.1	— 4.2	77	8	59	16	18	41	38	44	40	74	2.60	— 0.5	11	6,554	w.	32	nw.	24	7	10	11	6.1	
Florida Peninsula.							54.7	— 3.7	79	12	65	18	18	45	36	49	46	80	3.17	0.0	9	5,986	w.	50	s.	28	9	10	9	5.2	
Jupiter	28	13	30	30.06	30.09	— .00	54.2	— 2.9											2.59	+ 0.3									4.8	
Key West	22	43	50	30.08	30.10	+ .03	64.0	— 3.1	80	13	71	31	19	58	26	59	57	81	2.28	— 0.3	12	8,028	se.	36	se.	28	13	8	7	4.6	
Tampa	34	60	67	30.05	30.09	— .01	68.7	— 2.7	82	14	73	51	19	64	19	64	61	80	1.34	— 0.3	7	8,274	se.	44	nw.	25	12	11	5	4.5	
East. Gulf States.							59.8	— 1.9	80	7	68	28	18	51	32	55	52	82	4.15	+ 1.4	8	5,122	se.	34	se.	28	7	13	8	5.3	
Atlanta	1,174	139	156	28.80	30.09	— .06	49.4	— 5.1											7.65	+ 3.0									5.6	
Macon	370	93	99	.....	.....	.....	41.1	— 6.9	73	8	51	8	18	32	31	36	30	71	9.58	+ 5.0	12	9,594	nw.	45	nw.	24	7	6	15	6.4	T.
Pensacola	56	78	90	.....	.....	.....	45.9	.....	76	8	56	11	18	36	32	.....	.....	.....	7.64	.....	11	5,716	nw.	30	sw	12	6	12	10	5.5	T.
Mobile	57	88	96	30.01	30.08	— .03	52.5	— 3.6	74	4	60	19	18	42	33	46	43	80	8.19	+ 4.3	12	8,196	ne.	48	nw.	28	14	5	9	5.0	T.
Montgomery	223	100	112	29.82	30.07	— .06	51.2	— 5.3	75	4	60	19	18	37	34	43	38	75	10.10	+ 5.4	13	6,483	nw.	40	nw.	28	8	9	11	5.9	T.
Meridian	375	84	93	.....	.....	.....	47.4	— 5.8	75	8	57	14	18	35	33	.....	.....	.....	9.20	+ 3.9	11	6,447	se.	34	w.	28	8	10	10	5.8	T.
Vicksburg	347	65	73	29.76	30.03	— .09	45.8	— 7.8	74	8	57	14	17	38	39	41	34	62	7.61	+ 1.7	11	5,567	nw.	34	nw.	28	10	8	10	5.8	T.
New Orleans	51	112	120	30.00	30.06	— .02	48.6	— 4.0	78	8	62	24	18	45	27	49	45	77	4.64	0.0	9	6,888	se.	46	nw.	28	13	5	10	4.8	T.
Port Eads	.....	27	...	.....	.....	.....	53.4	— 4.7	78	9	64	26	18	47	36	.....	.....	76	5.46	+ 0.9	12	7,748	se.	36	nw.	28	.....	.....	.....	.....	....
West Gulf States.							55.6	— 4.0	75										6.44	+ 3.1	12	.....	nw.	....	.....	...	10	7	11	....	
Shreveport	249	77	84	29.77	30.04	— .06	43.4	— 5.1											2.58	— 0.9									5.4	
Fort Smith	457	74	82	29.53	30.04	— .05	47.2	— 4.0	74	7	58	13	17	37	41	41	34	64	3.41	— 0.8	10	6,783	se.	38	se.	8	9	2	17	6.1	T.
Little Rock	357	98	100	29.66	30.06	— .05	39.6	— 1.9	69	8	50	6	17	29	50	33	27	68	4.03	+ 0.4	8	6,321	e.	43	w.	8	7	5	16	7.0	1.0
Corpus Christi	18	42	50	30.02	30.04	— .03	40.6	— 4.8	72	7	51	5	17	30	50	36	31	75	4.46	— 0.9	11	6,997	nw.	44	nw.	23	6	10	12	6.5	0.1
Fort Worth	670	106	114	.....	.....	.....	36.6	— 2.4	79	20	63	29	17	50	35	51	47	75	4.40	— 0.4	4	8,899	se.	36	nw.	8	13	4	11	4.4	
Galveston	54	84	88	29.98	30.03	— .04	46.7	.....	78	27	60	13	17	34	49	.....	.....	.....	1.10	— 1.4	4	10,119	s.	48	w.	20	14	6	8	4.2	
Palestine	510	54	61	29.50	30.06	— .03	52.6	— 4.4	67	4	58	25	17	47	35	49	46	81	0.12	.....												
San Antonio	701	96	104	29.29	30.05	— .03	48.0	— 3.0	73	7	58	11	17	38	32	42	36	67	3.59	+ 0.6	10	8,371	se.	48	nw.	28	10	9	9	5.4	
Ohio Val. & Tenn.							54.3	— 1.5	80	*	65	19	18	43	35	46	38	76	1.16	— 2.4	8	7,538	s.	40	nw.	28	11	8	9	5.2	
Chattanooga	762	106	112	29.25	30.10	— .02	52.8	— 5.2											0.34	— 1.6	7	6,998	n.	46	nw.	8	14	7	7	4.0	
Knoxville	1,004	10	88	28.98	30.09	— .04	39.4	— 6.1	70	8	48	8	17	30	31	34	28	68	3.33	— 0.4									6.9	
Memphis	337	140	154	29.62	30.07	— .05	37.2	— 5.1	75	8	46	5	18	29	32	29	25	75	5.17	— 0.2	17	6,547	sw.	40	w.	24	7	9	12	6.1	2.9
Nashville	546	128	134	29.47	30.08	— .04	40.0	— 4.8	71	8	50	5	17	30	37	35	28	66	5.52	+ 0.2	15	6,530	sw.	48	w.	8	8	6	14	6.2	0.9
Lexington	989	75	102	.....	.....	.....	36.8	— 5.9	69	8	46	2	17	27	37	33	29	76	5.27	0.0	12	9,367	nw.	45	nw.	8	3	10	15	7.0	0.1
Louisville	525	114	136	29.46	30.06	— .06	31.1	— 4.9	68	8	40	— 4	25	22	41	.....	.....	.....	3.80	— 1.5	12	6,575	s.	44	se.	28	5	5	18	7.4	2.9
Evansville	434	73	82	.....	.....	.....	32.6	— 5.6	70	8	42	0	25	24	44	30	27	81	3.17	— 0.5	14	9,173	se.	48	w.	24	6	10	12	6.5	6.4
Indianapolis	822	154	164	29.11	30.05	— .05	32.2	.....	69	8	41	— 2	17	24	48	.....	.....	.....	3.74	— 0.6	15	6,951	se.	38	s.	8	4	13	11	6.6	5.5
Cincinnati	628	152	157	29.34	30.06	— .06	26.4	— 5.9	67	8	35	— 7	25	18	47	24	20	77	4.20	.....	13	5,825	nw.	36	s.	8	8	6	14	6.5	5.4
Columbus	834	87	100	29.12	30.05	— .05	29.9	— 6.5	68	8	39	— 5	25	21	41	28	23	74	3.60	0.0	13	8,371	nw.	54	sw.	8	3	10	15	7.1	2.0
Pittsburg	842	116	123	29.08	30.03	— .09	26.8	— 5.3	66	8	35	— 7	25	18	40	25	21	78	2.22	— 1.5	14	6,495	se.	40	w.	8	4	9	15	7.1	3.2
Parkersburg	638	77	84	29.36	30.09	— .03	29.0	— 4.4	77	8	38	— 4	25	20	48	26	22	77	3.30	— 0.4	14	6,562	w.	32	sw.	8	4	9	15	7.1	5.1
Elkins	1,940	41	50	.....	.....	.....	31.4	— 3.1	76	8	40	— 1	25	22	39	29	26	84	2.86	0.0	14	5,716	nw.	37	nw.	13	2	13	13	6.9	9.6
Lower Lake Region.							33.5	— 3.2											3.47	+ 0.4	17	5,315	w.	39	nw.	13	4	11	13	6.8	6.5
Buffalo	767	178	206	29.12	30.00	— .07	28.0	.....	74	8	39	—11	20	17	53	.....	.....	78	3.88	.....	20	4,688	w.	39	w.	13	0	7	21	8.5	15.5
Oswego	335	76	87	29.59	29.98	— .10	23.4	— 1.1	68	8	30	— 1	26	17	31	21	17	76	3.96	+ 1.2									7.2	
Rochester	523	81	90	29.39	29.98	— .10	23.2	— 1.4	55	13	30	— 3	25	16	29	21	18	82	5.21	+ 2.4	20	11,591	w.	65	w.	25	4	13	11	7.1	25.5
Erie	713	92	102	29.20	30.01	— .06	23.4	— 1.0	57	8	30	— 1	26	16	35	20	16	77	4.19	+ 1.6	17	10,875	se.	50	se.	22	2	7	19	8.1	18.5
Cleveland	762	190	201	29.15	30.02	— .07	24.2	— 3.3	70	8	31	— 4	25	17	39	22	20	86	4.44	+ 1.7	21	7,038	w.	38	w.	13	4	9	15	7.2	28.5
Sandusky	629	62	74	29.30	30.02	— .07	23.8	— 4.2	67	8	31	— 4	25	16	38	22	19	79	2.55	— 0.9	18	9,592	w.	41	s.	12	1	6	21	7.9	9.2
Toledo	628	123	128	29.30	30.03	— .05	24.0	— 4.9	68	8	32	— 2	25	16	38	21	17	78	3.37	+ 0.5	19	11,632	sw.	57	w.	13	2	16	10	6.9	22.6
Detroit	780	160	166	29.18	30.02	— .05	23.4	— 4.8	67	8	31	— 4	25	16	38	22	19	79	3.23	+ 0.3	15	6,549	w.	37	nw.	25	5	10	13	6.8	16.5
Upper Lake Region.							21.3	— 4.9	62	8	28	— 2	25	14	35	19	16	80	4.42	+ 2.4	15	7,888	w.	39	w.	25	9	8	11	6.0	25.1
Alpena	609	61	65	29.28	29.99	— .08	14.3	— 4.3											4.30	+ 2.0	14	7,741	w.	36	w.	13	3	10	15	7.2	28.0
Escanaba	612	43	57	29.30	30.02	— .04	16.6	— 1.4	59	8	24	—14	26	9	38	15	12	84	2.26	+ 0.4									6.2	
Grand Haven	632	55	64	29.28	30.00	— .06	11.6	— 4.2	37	12	21	—13	14	2	30	10	8	88	2.07	0.0	14	7,792	nw.	38	nw.	13	4	8	16	7.1	12.4
Marquette	734	67	95	29.14	30.00	— .06	20.4	— 4.6	59	8	27	— 1	17	14	38	20	18	92	1.28	— 0.3	11	6,750	nw.	35	nw.	24	9	6	13	5.9	5.7
Port Huron	638	70	108	29.29	30.03	— .04	11.0	— 6.1	33	11	18	— 9	14	4	30	10	8	91	3.73	+ 1.5	22	7,994	nw.	36	nw.	25	2	6	20	8.5	22.8
Sault Ste. Marie	614	40	61	29.24	29.96	— .10	19.2	— 3.8	59	8	26	— 9	27	12	29	18	15	87	2.53	+ 0.8	14	8,275	w.	42	se.	6	3	9	16	7.1	26.9
Chicago	823	241	274	29.10	30.05	— .08	12.0	— 0.5	42	8	21	—22	1	2	33	11	8	87	3.06	+ 0.6	13	8,910	w.	42	w.	9	10	9	9	5.9	28.4
Milwaukee	681	124	142	29.26	30.05	— .03	20.1	— 6.7	62	8	28	— 9	24	12	32	19	16	83	1.38	+ 0.1	14	6,634	sw.	42	nw.	13	9	6	13	6.0	5.8
Green Bay	617	49	57	29.34	30.06	— .02	17.8	— 4.9	55	8	26	—10	1	10	46	16	11	78	3.52	+ 1.3	14	12,809	w.	70	sw.	8	8	10	10	5.8	22.6
Duluth	702	95	106	29.26	30.09	.00	15.2	— 3.0	41	11	22	—14	1	4	30	11	7	76	3.05	+ 1.2	16	8,211	w.	33	ne.	21	9	7	12	5.9	20.6
North Dakota.							6.6	— 7.9	29	7	16	—20	9	— 2	35	5	0	76	1.67	— 0.6	12	6,413	sw.	30	w.	13	10	3	15	6.1	8.4
Moorhead	935	54	60	29.07	30.18	+ .03	3.2	— 4.0											0.28	— 0.8	6	6,890	sw.	54	nw.	8	13	12	3	3.9	3.1
Bismarck	1,674	16	29	28.26	30.21	+ .05	2.5	— 2.0	36	22	13	—26	9	— 8	38	1	0	90	0.55	0.0									5.5	
Williston	1,875	15	31	28.03	30.21	+ .04	3.8	— 5.7	44	6	16	—33	9	— 8	49	1	—5	67	0.50	— 0.3	9	7,004	nw.	34	nw.	23	9	9	10	5.8	5.2
							3.4	— 4.3	43	28	16	—36	9	— 9	49	2	—2	78	0.30	— 0.3	8	6,674	nw.	34	nw.	6	6	12	10	5.9	3.2
																			0.85	+ 0.5	7	6,517	nw.	42	n.	6	13	11	4	4.8	8.5

TABLE I.—*Climatological data for Weather Bureau Stations, February, 1900—Continued.*

Stations.	Elevation of instruments: Barometer above sea level, feet.	Elevation of instruments: Thermometers above ground.	Elevation of instruments: Anemometer above ground.	Pressure, in inches: Mean actual, 8 a. m. + 8 p. m. + 2.	Pressure, in inches: Mean reduced.	Pressure, in inches: Departure from normal.	Temperature of the air, in degrees Fahrenheit: Mean max. + mean min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches: Total.	Departure from normal.	Days with .01, or more.	Wind: Total movement, miles.	Prevailing direction.	Maximum velocity: Miles per hour.	Maximum velocity: Direction.	Maximum velocity: Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.
Upper Miss. Valley.							19.5	— 6.5										80	2.52	+ 0.6	7	8,085	nw.	45	nw.	8	4	15	9	5.9	9.1
Minneapolis	.....	99	208	.....	.....	.....	8.4	— 7.8	37	7	18	—17	13	— 1	32	7	4	81	0.61	— 0.4	6	6,065	nw.	36	nw.	23	7	14	7	5.2	7.9
St. Paul	837	114	124	29.13	30.12	.00	12.0	— 8.1	45	7	18	—18	9	— 1	32				0.73	— 0.2	6	4,811	nw.	30	nw.	8	11	4	13	5.6	13.8
La Crosse	714	70	78	.....	.....	.....	18.0	— 7.3	53	7	26	—10	15	3	39	16	12	77	1.09	0.0	6	5,998	nw.	36	w.	8	9	7	12	5.9	12.9
Davenport	606	71	79	29.36	30.07	— .03	17.0	— 6.1	45	11	26	—10	15	8	39	15	13	86	2.45	+ 0.9	15	6,227	ne.	31	nw.	24	8	4	12	5.2	18.6
Des Moines	861	84	88	29.14	30.15	+ .03	15.4	— 7.2	45	11	24	—10	16	7	36	14	12	87	0.50	— 0.8	6	6,359	nw.	36	nw.	24	12	4	12	5.2	7.2
Dubuque	698	101	109	29.27	30.09	.00	22.2	— 6.1	60	7	31	— 2	*	14	45	19	15	77	2.13	+ 0.7	13	6,183	nw.	36	w.	8	4	11	13	6.9	24.4
Keokuk	614	63	78	29.38	30.08	— .02	34.4	— 5.0	70	8	44	0	17	25	48	31	27	79	3.24	+ 1.5	13	7,676	se.	36	s.	8	5	14	9	6.8	23.3
Cairo	356	87	93	29.66	30.06	— .04	25.3	— 5.0	64	7	34	— 4	17	17	51	21	17	79	3.20	— 0.8	13	7,961	nw.	38	w.	24	10	7	11	5.4	9.3
Keokuk	644	82	92	29.33	30.07	— .04	23.8	— 6.7	59	7	33	— 2	17	15	40	.....	.....	.....	4.85	+ 1.5	17	7,033	nw.	37	nw.	8	7	6	15	6.4	
Springfield, Ill.	534	75	110	.....	.....	.....	25.3	— 5.0	64	7	33	— 2	17	21	49	26	22	76	3.87	+ 2.2	12	8,062	nw.	59	sw.					5.8	
Hannibal	567	111	210	29.41	30.06	— .05	23.8	— 5.3	65	8	38	1	17					74	5.09	+ 2.3	14										6.7	20.1
St. Louis							29.8	— 5.3											1.63	0.3						8	7	5	16		
Missouri Valley.							29.0	— 4.3											3.76	— 1.2	15	7,057	nw.	35	w.	23	10	5	13	5.3	18.4
Columbia	784	4	84	.....	.....	.....	25.6	— 7.2	61	7	36	— 4	17	15	50	.....	.....	.....	3.33	+ 1.5	13	6,662	nw.	32	nw.	8	11	5	12	5.7	5.6
Kansas City	963	78	95	29.02	30.11	— .01	25.2	— 5.8	63	7	34	— 1	17	17	35	22	18	76	2.47	— 1.0	13	8,689	se.	42	w.					5.5	27.1
Springfield, Mo.	1,324	100	103	28.59	30.06	— .04	25.6	— 5.1	64	7	38	— 8	17	21	32	26	22	78	2.47	+ 2.1	11	.....	nw.	.....	.....	8	8	11	9	5.5	9.6
Topeka	.....	81	.....	.....	.....	.....	25.0	— 6.3	61	7	38	—12	9	8	44	16	12	79	3.58	— 2.1	7	8,250	nw.	40	nw.	23	8	13	7	5.6	8.1
Lincoln	1,189	75	84	28.76	30.13	— .02	29.6	— 4.2	48	6	30	—12	9	5	51	.....	.....	.....	0.97	0.0	6	7,442	ne.	42	ne.	8	7	11	10	5.9	10.8
Omaha	1,105	115	121	28.86	30.12	— .02	19.2	— 7.2	45	11	27	— 9	15	9	35	16	12	78	0.81	0.0	7	8,779	nw.	50	nw.	8	4	13	11	6.5	3.7
Sioux City	1,135	96	164	.....	.....	.....	17.8	— 7.2	45	11	27	— 9	15	5	51	.....	.....	.....	0.62	0.0	7	7,455	nw.	48	nw.	6	4	13	11	6.5	3.7
Pierre	1,572	11	19	28.38	30.17	.00	13 8	— 5.2	47	6	22	—12	9	6	45	15	2	56	0.36	0.0	7	8,071	nw.	39	nw.	23	10	13	5	4.6	1.4
Huron	1,306	56	67	28.66	30.18	+ .01	16.3	+ 0.9	55	6	27	—15	8	6	45	12	4	76	0.14	— 0.4	5	6,333	nw.	37	nw.	7	7	11	10	6.4	4.7
Yankton	1,233	52	58	.....	.....	.....	11.9	— 0.1	52	6	28	—10	9	4	50	.....	.....	.....	0.30	— 0.4										6.0	
Northern Slope.							16.0	— 3.2	50									74	0.72	+ 0.2	8	6,616	w.	54	ne.		6	7	13	8	5.7	7.2
Havre	2,505	46	47	27.34	30.17	+ .01	19.5	— 1.3											0.72	+ 0.2	6	4,599	nw.	40	nw.		9	2	3	4.9	3.9
Miles City	2,371	42	50	27.47	30.12	— .04	11.3	— 1.9	49	28	26	—37	8	0	45	10	6	82	0.39	— 0.1	7	5,189	sw.	46	sw.	28	5	9	14	6.6	8.5
Helena	4,110	88	93	25.78	30.18	+ .03	16.8	+ 0.6	50	28	26	—16	17	7	38	14	11	84	0.64	— 0.1	13	3,783	nw.	34	sw.	6	5	11	12	6.2	2.0
Kalispell	2,965	45	51	26.91	30.14	.....	21.9	+ 0.2	52	28	32	—23	16	14	37	19	12	66	0.99	.....	4	4,972	n.	37	n.	11	8	13	7	5.3	13.1
Rapid City	3,234	46	50	26.53	30.07	— .09	23.9	.....	46	28	32	—19	15	15	29	21	16	75	0.17	— 0.4	10	9,695	nw.	51	w.	11	5	17	6	5.6	10.6
Cheyenne	6,088	56	64	23.86	30.18	+ .03	20.1	— 0.5	54	6	30	—18	15	10	38	17	13	79	1.25	+ 0.8	7	2,391	sw.	42	sw.	16	10	10	8	5.4	11.7
Lander	5,372	28	36	24.54	30.19	+ .03	24.3	— 3.0	52	22	36	—12	15	13	39	19	9	58	1.06	+ 0.4	11	5,698	nw.	31	nw.					4.7	
North Platte	2,821	43	52	27.05	30.16	+ .01	18.0	— 3.8	50	22	36	—11	16	13	41	19	15	76	0.78	+ 0.4										4.7	
Middle Slope.							24.4	— 0.9	62									66	1.00	+ 0.2										4.0	10.8
Denver	5,291	79	151	24.62	30.15	+ .01	30.3	— 2.0	61	22	43	—10	16	18	43	23	11	53	0.55	0.0	6	6,405	s.	53	nw.	11	15	9	4	3.6	9.1
Pueblo	4,685	80	86	25.18	30.06	— .07	30.2	— 2.0	64	22	45	—16	17	16	50	24	13	52	0.68	+ 0.2	6	5,718	w.	47	n.	27	17	10	1	5.1	9.2
Concordia	1,398	42	47	28.55	30.13	— .02	30.2	+ 0.1	59	22	35	— 4	17	16	42	21	18	80	0.77	— 0.2	6	5,444	n.	24	n.	12	8	10	10	5.6	7.3
Dodge	2,509	44	52	27.35	30.09	— .01	25.2	— 3.0	64	22	44	— 6	17	17	55	25	19	71	0.99	+ 0.4	8	7,950	nw.	37	s.	13	9	12	7	5.1	9.2
Wichita	1,358	78	85	28.58	30.09	— .06	30.4	— 1.4	63	3	39	— 1	17	20	42	25	20	76	2.10	+ 0.9	5	9,385	n.	41	n.	23	12	8	8	5.0	12.0
Oklahoma	1,214	54	62	28.70	30.06	— .03	29.8	— 2.0	63	3	39	— 1	17	24	41	31	24	66	0.91	— 0.2						27	11	7	10	5.1	0.5
Southern Slope.							36.2	— 3.9	70	3	48	5	17					59	0.53	— 0.3										4.0	
Abilene	1,738	45	54	28.18	30.05	— .03	41.4	+ 0.6										53	0.53	— 0.8										5.5	
Amarillo	3,676	54	61	26.17	30.06	— .03	46.4	+ 0.5	77	23	59	14	16	34	43	37	36	53	0.47	— 0.8										2.3	
Southern Plateau.							36.4	+ 0.8	70	22	50	5	15	23	55	29	21	65	0.32	— 0.6	5	8,049	nw.	55	sw.	19	17	7	4	3.0	6.7
El Paso	3,762	10	110	26.14	30.02	— .02	46.7	+ 2.0										33	0.43	0.0	5	5,057	ne.	38	nw.	16	18	7	3	3.0	1.6
Santa Fe	7,013	47	50	23.14	30.03	— .03	48.8	— 0.6	79	26	63	17	18	34	45	37	18	37	1.00	+ 0.2	3	.....	nw.	.....	.....	.....	7	10	11	.....	
Flagstaff	6,907	12	25	23.26	30.13	.....	33.4	+ 1.4	56	22	44	8	9	23	32	26	9	41	0.28	— 1.8	1	3,135	e.	26	w.	7	19	9	0	2.2	
Phenix	1,108	47	57	28.81	29.99	— .06	33.4	+ 2.8	61	23	49	4	8	18	47	.....	.....	.....	0.04	— 0.8	1	4,768	w.	36	n.	7	26	2	0	1.1	
Yuma	141	16	50	29.79	29.94	— .08	56.4	+ 2.1	80	28	71	29	9	42	36	42	36	34	0.11	— 0.4	1	6,413	nw.	36	s.	26	23	5	0	2.2	
Independence	3,910	51	58	25.99	30.00	— .07	60.2	+ 1.4	84	22	75	34	9	45	41	46	27	35	0 05	— 0.5										5.5	
Middle Plateau.							48.1	+ 5.3	69	21	61	25	8	35	32	36	12	52	0.60	— 0.5											
Carson City	4,720	82	92	25.31	30.14	+ .04	35.6	+ 3.4										56	0.28	— 1.2	3	4,911	sw.	60	w.	14	4	15	9	5.6	T.
Winnemucca	4,344	59	70	25.70	30.17	+ .04	40.0	+ 3.7	65	24	52	18	10	28	42	33	24	59	0.69	— 0.2	7	7,114	sw.	60	w.	7	14	7	7	4.1	1.1
Cedar City	5,850	26	47	24.22	30.12	.....	36.2	+ 3.7	57	28	48	5	7	25	37	31	22	59	0.29	.....	5	4,433	se.	38	n.	6	8	11	9	5.4	14.4
Salt Lake City	4,366	105	110	25.64	30.18	.00	37.4	.....	63	25	49	7	8	26	34	28	10	38	1.30	0.0	9	3,518	se.	60	n.	22	7	13	8	5.2	0.2
Grand Junction	4,608	43	50	25.34	30.12	.....	34.1	+ 1.2	55	28	42	10	17	26	27	30	23	65	0.14	— 0.5	4	3,859	se.	41	nw.					7.1	
Northern Plateau.							36.1	+ 4.8	59	21	48	12	8	24	33	27	13	42	1.32	— 0.4										7.6	
Baker City	3,471	53	58	26.47	30.18	+ .05	33.0	+ 3.7										74	1.05	— 0.7	11	3,986	s.	34	n.	6	1	7	20	7.8	5.8
Boise	2,739	61	68	27.24	30.17	— .01	30.9	+ 5.9	51	21	38	— 1	16	24	29	28	23	74	1.48	— 0.1	10	2,963	se.	33	nw.	6	3	14	11	6.5	4.3
Pocatello	4,482	48	56	25.46	30.15	— .04	36.2	+ 1.5	57	21	44	11	16	28	34	32	26	66	1.26	— 0.6	11	7,854	w.	48	w.	11	6	4	18	7.0	8.9
Spokane	1,943	99	107	28.02	30.14	+ .03	29.4	+ 0.4	49	21	37	— 6	16	22	31	27	23	76	1.19	— 0.8	6	4,305	sw.	41	sw.	6	1	6	21	8.2	8.0
Walla Walla	1,000	65	73	29.04	30.15	+ .04	29.4	+ 2.9	51	22	38	1	15	25	22	28	23	72	1.62	+ 0.3	8	3,994	s.	34	sw.	6	3	16	9	5.9	6.7
N. Pac. Coast Reg.							37.2	+ 1.8	60	21	43	1	16	31	25	35	32	82	4.94	— 0.7										7.6	
Neah †	50	7	24	30.01	30.07	+ .05	42.0	+ 3.4										83	8.88	— 1.4	21	6,369	sw.	54	w.	6	5	2	21	7.5	3.0
Port Crescent	259	15	20	.....	.....	.....	41.3	+ 0.6	50	17	44	18	15	38	14	40	38	86	3.54	— 1.2	20	2,697	w.	26	sw.	6	3	9	16	7.2	4.5
Seattle	123	114	121	29.97	30.10	+ .06	38.6	+ 3.1	55	21	44	19	14	33	19	.....	.....	.....	4.35	— 0.2	19	4,235	se.	33	s.	6	1	7	20	8.0	0.6
Tacoma	213	113	120	.....	.....	.....	42.3	+ 3.3	55	21	47	22	15	38	12	40	37	83	4.66	— 0.7	18	4,508	sw	34	w.	6	3	5	20	8.1	0.1
Astoria	20	57	64	30.12	30.14	+ .12	41.7	+ 3.7	56	20	47	25	15	37	16	41	.....	.....	10.73	+ 2.8	27	4,696	sw.	32	nw.	6	1	7	20	8.0	1.4
Portland, Oreg	154	208	213	29.97	30.14	+ .06	42.6	+ 2.1	58	21	48	25	15	37	17	40	37	83	3.36	— 2.8	20	6,517	s.	43	s.	22	5	9	14	6.7	
Roseburg	518	56	67	29.56	30.14	+ .04	41.8	+ 3.4	57	21	47	30	12	39	23	42	39	82	3.00	— 1.9	21	2,006	nw.	17	sw.					5.0	
Mid. Pac. C'st Reg.							44.9	+ 4.6	60	23	51							85	2.16	— 2.0										6.3	
Eureka	62	60	69	30.13	30.19	+ .10	51.2	+ 2.1										76	6.04	— 0.1	12	3,800	se.	39	n.	6	6	10	12	6.3	
Mount Tamalpais	2,375	11	18	27.63	30.13	.....	48.6	+ 2.4	63	17	54	36	7	44	18	47	44	85	1.91	.....	10	10,803	n.	51	n.	7	13	7	8	4.5	
Red Bluff	332	54	58	29.77	30.13	+ .04	48.4	.....	63	12	53	33	7	44	16	43	37	69	1.62	— 2.1	9	3,736	n.	34	n.	5	12	8	8	4.9	
Sacramento	69	106	117	30.04	30.12	+ .03	51.1	+ 2.1	73	10	60	35	9	43	31	46	41	72	0.32	— 2.8	4	5,462	se.	30	nw.	7	11	11	6	5.3	
San Francisco	155	161	167	29.98	30.14	+ .06	51.7	+ 1.9	68	23	60	44	1	48	20	50	46	78	0.64	— 3.0	6	4,843	w.	32	w.	18	13	10	5	3.8	
Point Reyes Light †	.....	12	16	.....	.....	.....	53.6	+ 1.9	68	23	60	44	7	47	21	.....	.....	.....	0.99	— 2.8	4	8,598	nw.	.....	.....	...	12	6	10	4.9	
S. Pac. Coast Reg.							52.2	+ 3.6	69	12	58	42						69	0.07	— 2.6										2.2	
Fresno	330	67	70	29.74	30.10	+ .02	55.9	+ 2.5										81	0.08	— 1.1	3	2,815	nw.	19	nw.	26	15	9	4	4.0	
Los Angeles	338	74	82	29.65	30.01	— .04	51.4	+ 1.2	75	17	62	34	8	41	32	48	44	81	T.	— 3.3	0	2,584	w.	18	n.	7	15	13	0	2.9	
San Diego	87	94	102	29.89	29.99	— .07	58.4	+ 4.0	84	22	71	40	9	46	36	49	41	63	0.03	— 2.2	1	3,965	nw.	28	nw.	19	25	3	0	1.5	
San Luis Obispo	201	10	46	29.88	30.10	+ .02	57.6	+ 2.8	76	23	65	45	20	51	23	50	44	66	0.16	— 3.6	2	3,730	n.	25	w.	26	18	9	1	3.2	
West Indies.							56.2	+ 1.9	80	24	69	34	11	44	44	48	42	67												
Basseterre	29	41	54	30.03	30.06	.....	76.8	.....	84	19	81	69	5	72	12	70	67	73	1.46	.....	10	7,560	e.	25	e.	3	10	13	5	4.9	
Bridgetown	30	57	65	29.98	30.01	.....	78.2	.....	85	8	84	68	10	72	16	72	70	77	1.04	— 0.9	11	6,504	ne.	26	se.	1	3	20	5	5.7	
Cienfuegos	52	62	67	30.00	30.05	.....	70.8	.....	86	9	80	49	26	61	25	65	63	82	1.55	.....	5	5,545	ne.	24	n.	27	17	8	4	3.8	
Havana	57	83	100	30.02	30.08	.....	70.8	.....	86	8	78	53	20	64	21	65	63	81	3.39	+ 1.1	5	7,992	e.	42	nw.	25	5	15	8	6.0	
Kingston	296	38	52	29.70	30.00	.....	75.9	.....	87	28	84	64	23	67	20	67	64	74	0.20	.....	7	7,258	n.	28	se.	12	10	15	3	4.4	
Port of Spain	40	65	66	29.92	29.96	.....	78.4	.....	90	18	86	66	15	70	22	72	69	74	0.67	.....	4	4,771	ne.	17	ne.	12	13	13	2	4.4	
Puerto Principe	352	55	62	29.69	30.04	.....	71.1	.....	87	17	80	49	20	62	28	65	64	88	1.32	.....	6	3,472	e.	17	ne.	10	11	11	6	5.2	
Roseau	25	37	47	29.99	30.01	.....	77.6	.....	86	25	84	68	12	71	17	69	64	66	0.72	.....	9	4,304	ne.	34	e.	25	16	11	1	3.6	
San Juan	82	48	73	29.98	30.06	.....	75.7	.....	86	25	81	66	19	70	17	70	67	75	2.13	— 0.2	13	7,842	e.	34	e.	28	12	15	1	3.7	
Santiago de Cuba	82	26	33	29.93	30.01	.....	76.1	.....	88	12	85	59	20	67	26	68	65	77	0.87	.....	4	3,312[b]	ne.	22	n.	19	16	8	4	4.3	
Santo Domingo	57	37	44	30.01	30.07	.....	74.5	.....	88	3	82	63	14	67	19	69	68	84	1.20	.....	11	4,144	n.	20	n.	19	9	15	4	4.5	
Willemstad	75	39	46	29.87	29.94	.....	79.5	.....	85	1	84	71	11	75	12	72	69	74	0.26	.....	6	8,994	e.	25	e.	25	10	16	2	4.5	

NOTE.—The data at stations having no departures are not used in computing the district averages. Letters of the alphabet denote number of days missing from the record. *Two or more dates. †Received too late to be considered in departures, etc.

TABLE II.—*Climatological record of voluntary and other cooperating observers, February*, 1900.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Alabama.	°	°	°	*Ins.*	*Ins.*
Alco	78	17	51.8	11.59	
Ashville	70	9	43.0	7.40	T.
Bermuda	74	14	50.4	13.51	
Birmingham	70	12	46.0	6.17	
Bridgeport	.....	.....	.....	5.40	
Citronelle	72	18	51.4	12.82	T.
Clanton	72	15	43.4	8.85	
Daphne	76°	18°	49.4°	10.57	
Decatur	70	8	41.4	4.12	T.
Demopolis	.....	.....	.....	9.77	
Elba	77°	8°	46.7°	11.24	
Eufaula *a*	73	12	46.6	11.04	
Eufaula *c*	.....	.....	.....	10.70	T.
Eutaw	73	14	45.0	6.83	T.
Florence *a*	.....	.....	.....	3.79	T.
Florence *b*	65	7	40.2	3.88	T.
Fort Deposit	73	14	45.7	11.01	
Gadsden	70	9	42.4	6.14	T.
Goodwater	70	10	40.8	10.28	T.
Greensboro	72	15	43.9	10.26	T.
Hamilton	71	7	42.3	5.36	T.
Healing Springs	75	17	47.8	10.91	T.
Highland Home	72	10	43.8	11.28	T.
Livingston *a*	73	11	43.4	6.49	
Livingston *b*	73	15	44.6	8.05	T.
Lock No. 4	70	11	40.6	7.34	T.
Madison Station	70	7	40.0	5.35	
Maplegrove	72	8	39.0	7.79	
Marion	71	12	45.5	10.00	T.
Mount Willing	75	15	49.2	9.48	1.0
Newbern	73	13	45.8	9.38	T.
Newburg	65	10	43.4	4.52	
Newton	69	11	45.4	12.67	T.
Oneonta	69	9	41.8	8.77	T.
Opelika	68	10	43.6	10.87	
Oxanna	68	10	41.0	8.80	1.0
Pineapple	80	15	48 2	7.50	T.
Prattville	74	18	47.7	.....	.....
Pushmataha	73	15	47.8	9.11	1.0
Riverton	72	6	37.8	4.24	T.
Rockmills	70	9	43.0	9.90	
Scottsboro	68	8	38 6	.....	.....
Selma	73	14	45.4	7.39	
Tallassee	.....	.....	.....	8.84	
Thomasville	.....	.....	.....	8.55	
Tuscaloosa	72	12	42.0	5.54	
Tuskegee	75	11	44.0	12.02	T.
Union Springs	75	12	45.6	17.60	T.
Uniontown	75	15	47.0	8.31	
Valleyhead	69	6	38.8	7.72	
Warrior	.....	.....	.....	6.14	
Wetumpka	82	13	45.1	9.30	
Arizona.					
Allaire Ranch	.....	.....	.....	0.58	
Arivaca	90	26	54.3	0.79	
Arizona Canal Co. Dam	80	30	55.4	0.05	
Aztec *1	83	45	60.5	0.13	
Benson *1	70	34	52.8	0.95	
Bisbee	73	26	48.4	1.41	
Bowie *5	60	25	43.8	0.00	
Buckeye	85	25	55.0	0.00	
Camp Creek	77	31	52.7	0.24	
Casagrande *1	85	34	59.7	0.00	
Champie Camp	88	29	58.0	0.10	
Cochise *5	75	25	50.9	0.80	
Congress	75	35	55.4	0.12	
Dragoon Summit *1	63	30	45 2	0.78	
Dudleyville	78	27	51.0	0.75	
Fort Apache	68	12	39.2	0.29	T.
Fort Defiance	58	4	33.1	T.	T.
Fort Grant	74	25	49.0	0.53	
Fort Huachuca	71	21	47.5	1.15	
Fort Mohave	87	32	59.7	0.00	
Gilabend *1	80	33	51.4	T.	
Holbrook	66	7	38.2	0.14	1.0
Ingleside	81	27	54.8	0.06	
Jerome	70	25	47.6	T.	T.
Maricopa *1	83	29	54.2	T.	
Mesa	82	25	55.0	T.	
Mount Huachuca	71	25	46.7	1.93	
Music Mountain	73	24	49.9	0.00	
Natural Bridge	.....	.....	.....	0.40	T.
Nogales	78	24	50.4	1.13	
Oracle	69	25	48.4	0.67	
Oro	.....	.....	.....	0.58	
Pantano *1	78	32	52.3	0.58	T.
Parker	89°	32°	59.8°	0.00	
Peoria	81	32	55.5	0.09	
Phenix	80	24	53.4	T.	
Pima	79	15	46.9	0.15	
Pinal Ranch	.....	.....	.....	1.04	
Prescott	70	16	40.4	T.	T.
Russellville	.....	.....	.....	1.02	
San Carlos	80	24	50.4	0.40	
San Simon *1	68	30	41.3	0.00	
Sentinel *1	85	38	57.8	0.00	
Signal	83	25	52.7	0.00	
Silverking	.....	.....	.....	0.85	
Snowflake	58	0	30.6	0.29	5.0
Strawberry	65	15	38.4	0.48	1.0
Supai	74	28	49.6	0.00	
Texas Hill *1	87	33	57.2	0.12	
Tonto	78	15	46.7	0.64	
Tuba	73	12	43.3	T.	T.
Tucson	80	25	52.1	0.49	
Vail *1	77	35	53.8	0.04	
Walnutgrove	.....	.....	.....	0.00	
Willcox *1	67	25	46.4	0.79	
Winslow	68	13	40.4	0.44	T.
Yarnell	.....	.....	.....	0.26	
Arkansas.					
Amity	69	7	41.5	4.33	T.
Arkadelphia	71	9	43.1	4.73	0.5
Arkansas City	.....	.....	.....	5.06	
Batesville	70	7	38.4	5.39	
Beebranch	68	0	38.3	4.50	4.0
Blanchard Springs	72	9	44.8	4.15	
Brinkley	71	5	40.5	7.70	T.
Camden *a*	.....	.....	.....	5.29	T.
Camden *b*	70	8	43.4	5.50	T.
Canton	69	0	34.0	4.16	3.5
Conway	70	5	41.6	6.53	2.0
Corning	71	— 1	34.5	4.33	4.0
Dallas	74	4	42.0	2.69	T.
Dardanelle	.....	.....	.....	5.01	
Elon	74	10	45.2	4.76	
Fayetteville	65	— 2	36.8	2.89	3.9
Fulton	.....	.....	.....	3.47	
Hardy	65	0	34.8	4.37	2.7
Helena *a*	.....	.....	.....	6.64	.....
Helena *b*	70	6	41.6	6.19	0.3
Hot Springs *b*	.....	.....	.....	6.01	
Jonesboro	71	2	39.6	3.67	0.7
Keesees Ferry	62	— 2	34.7	4.95	6.2
Lacrosse	69	0	36.4	3.68	4.0
Lonoke	70	6	40.6	6.04	0.5
Luna Landing	73	10	44.0	5.22	
Lutherville	65	3	38.2	4.50	T.
Malvern	72	8	41.8	5.37	
Mariana	70	5	39.8	6.90	T.
Marvell	70	6	41.4	6.59	T.
Mossville	60	0	32.6	5.72	1.2
Mount Nebo	64	— 3	35.2	5.80	1.0
New Gascony	68	8	42.4	6.32	T.
Newport *a*	.....	.....	.....	5.26	1.1
Newport *b*	71	4	38.8	5.48	.....
Newport *c*	74	4	38.2	5.44	T.
Oregon	66	— 4	36.5	4.72	2.2
Osceola	69	4	39.4	6.12	T.
Ozark	68	6	40.6	3.45	T.
Pinebluff	71	9	42.5	5.66	
Pocahontas	69	0	35.6	3.79	0.2
Pond	65	— 3	33.8	2.40	3.5
Powell	68	0	34.0	4.68	4.5
Prescott	72	10	43.6	3.24	
Rison	72	8	44.4	5.52	
Russellville	67	14	41.8	4.47	1.2
Silversprings	65	— 1	35.9	2.40	5.0
Spielerville	73	5	40.1	3.46	0.5
Stamps	70	8	44.0	7.21	T.
Stuttgart	72	7	41.7	5.59	0.2
Texarkana	73	20	47.4	.....	.....
Warren	66	10	39.9	7.10	
Washington	72	9	44.2	3.98	0.6
Wiggs	69	6	40.8	5.18	T.
Winslow	50	— 5	27.5	5.21	6.5
Witts Springs	64	4	36.0	6.05	13.0
California.					
Anada	66	28	45.2	4.74	
Angiola	80	24	49.3	0.09	
Azusa	.....	.....	.....	T.	
Bakersfield	78	30	51.0	0.26	
Ballast Point L. H	.....	.....	.....	0.13	
Bear Valley	.....	.....	.....	4.81	9.8
Berkeley	66	40	51.6	1.02	
Bishop	76	18	45.4	0.01	
Boca *1	54	8	32.4	0.60	6.0
Bodie	51	— 9	25.8	0.23	2.0
Bowman *1	63	20	36.9	4.44	17.0
Cahto	.....	.....	.....	3.86	
Caliente	73	30	53.5	0.98	
Campbell	70	32	50.8	0.40	
Cape Mendocino L. H	.....	.....	.....	7.05	
Cedarville	59	15	37.2	1.51	6.5
Chico *1	80	37	53.2	0.95	
Cisco *1	48	15	31.8	6.43	30.0
Claremont	79	32	52.9	0.19	
Corning *1	70	38	51.8	1.34	
Coronado	72	50	58.4	.....	
Craftonville	83	32	57.0	T.	
Crescent City	61	32	48.3	12.86	
Crescent City L. H	.....	.....	.....	10.49	
Cuyamaca	62	21	39.5	0.26	
Delta *1	72	30	49.5	4.60	
Deweyville	77	29	50.6	0.31	
Drytown	74	30	52.4	1.42	
Dunnigan *1	64	33	50.8	0.10	
Durham *1	70	36	51.3	1.12	
East Brother L. H	.....	.....	.....	0.10	
Edmanton *1	62	22	39.0	3.10	9.0
Elcajon	84	31	56.0	0.11	
Elmdale	75	29	49.7	0.05	1.0
Elsinore	95	30	56.4	0.00	
Escondido	78	26	50.6	0.20	
Fallbrook *1	79	38	52.7	0.29	
Fordyce Dam	.....	.....	.....	4.95	32.0
Fort Ross	70	40	52.3	4.39	
Fort Tejon	.....	.....	.....	0.66	
Georgetown	63	31	47.0	4.29	
Gilroy Hot Springs	.....	.....	.....	0.05	
Gilroy (near)	77	28	51.2	0.46	
Grand Island *5	68	36	52.4	0.34	
Grass Valley	.....	.....	.....	2.69	
Greenville	65	19	41.0	1.44	3.0
Hanford	76	28	49.8	0.00	
Healdsburg	78	31	52.0	1.27	
Hill Ranch	.....	.....	.....	0.00	
Hollister	76	29	51.1	0.26	
Humboldt L. H	.....	.....	.....	1.19	
Indio *1	82	40	60.2	0.00	
Iowa Hill *1	66	35	48.2	3.39	
Irvine	94	42	65.2	T.	
Jackson	58	30	42.2	2.15	
Jolon	.....	.....	.....	0.11	
Kennedy Gold Mine	65	26	45.0	1.97	
Kernville	.....	.....	.....	0.53	
King City *1	72	29	47.3	0.06	
Kono Tayee	65	35	49.6	1.27	
Lagrange *5	71	34	52.4	0.21	
Lamesa	.....	.....	.....	0.08	
Lankershim	73	29	48.9	0.07	
Laporte *1	56	22	36.9	5.66	22.9
Las Fuentes Ranch	.....	.....	.....	0.00	
Legrand	.....	29	.....	T.	
Lemoncove	78	34	53.4	0.10	
Lick Observatory	58	24	43.0	1.70	
Lime Point L. H	.....	.....	.....	1.36	
Lodi	70	34	51.2	0.37	
Los Gatos *b*	67	35	49.8	0.45	
Mammoth *1	85	35	59.6	0.00	
Manzana	75	30	51.0	0.10	
Mare Island L. H	.....	.....	.....	0.56	
Merced *b*	72	29	49.0	0.05	
Mills College	.....	.....	.....	1.61	
Milo	.....	.....	.....	0.35	
Milton (near) *1	68	33	51.0	0.71	
Modesto *1	81	34	54.5	0.29	
Mokelumne Hill *3	.....	32	46.2	1.54	
Monterio	78	32	52.6	0.60	4.0
Monterey *1	68	36	53.3	0.66	
Morena	.....	.....	.....	0.13	
Mountainview	.....	.....	.....	0.36	
Mutah Flat	.....	.....	.....	0.00	
Napa *b*	72	32	52.0	0.41	
Needles	80	35	59.6	0.00	
Nevada City	67	26	44.7	2.36	
Niles *1	76	42	56.8	0.87	
North Bloomfield	70	29	47.2	5.20	2.0
North Ontario	77	38	54.9	0.19	
North San Juan *1	80	29	50.5	3.88	
Oakland *a*	66	39	52.0	0.87	
Ogilby	95	50	66.0	0.00	
Oleta *1	65	30	45.8	2.90	
Orland *1	68	37	50.8	0.84	
Palermo	68	33	50.2	0.72	
Palmdale	.....	.....	.....	0.00	
Paso Robles *b*	77	27	50.3	0.08	
Peachland *5	70	34	52.2	1.15	
Piedras Blancas L. H	.....	.....	.....	0.20	
Pigeon Point L. H	.....	.....	.....	1.20	
Pilot Creek	.....	.....	.....	4.30	7.0
Pine Crest	78	40	59.6	T.	
Point Ano Nuevo L. H	.....	.....	.....	1.20	
Point Arena L. H	.....	.....	.....	2.93	
Point Bonita L. H	.....	.....	.....	0.66	
Point Conception L. H	.....	.....	.....	0.00	
Point Firmin L. H	.....	.....	.....	0.00	
Point George L. H	.....	.....	.....	4.05	
Point Hueneme L. H	.....	.....	.....	0.00	
Point Lobos	63	43	51.9	0.96	
Point Loma L. H	.....	.....	.....	0.08	
Point Montara L. H	.....	.....	.....	1.92	
Point Pinos L. H	.....	.....	.....	0.85	
Point Sur L. H	.....	.....	.....	0.83	
Pomona (near)	87	34	57.3	0.05	
Poway *3	80	36	50.1	0.32	
Quincy	58	23	40.8	1.87	3.0
Ranch House	80	40	61.8	0.00	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
California—Cont'd.	°	°	°	*Ins.*	*Ins.*
Raymond	71	30	49.8	0.30	
Redding	72	32	50.6	2.86	
Redlands	86	37	57.6	T.	
Reedly	75	31	48.3	T.	
Represa	64	34	51.0	1.16	
Riovista	67	32	50.8	0.42	
Riverside	84	35	57.6	0.01	
Roe Island L. H	.....	.....	.....	0.38	
Rosewood	70	25	47.5	1.91	
Sacramento *a*	72	34	51.4	0.39	
Salinas *1	72	38	53.9	0.62	
Salton *5	87	35	65.2	0.00	
San Bernardino	87	30	55.9	0.00	
San Jacinto	84	30	53.9	0.00	
San Leandro *1	78	40	55.8	1.24	
San Luis L. H	.....	.....	.....	0.10	
San Mateo *1	69	37	52.0	0.84	
San Miguel *1	74	28	52.6	0.07	
Santa Barbara *a*	82	42	58.0	0.05	
Santa Barbara L. H	.....	.....	.....	0.03	
Santa Clara *a*	.....	.....	.....	0.49	
Santa Cruz *b*	77	31	52.4	0.99	
Santa Cruz L. H	.....	.....	.....	1.28	
Santa Maria	81	36	57.9	0.05	
Santa Paula	87	38	61.1	0.00	
Santa Rosa *1	69	37	55.2	0.77	
Shasta	73	30	50.0	3.99	
Sierra Madre	79	40	57.5	0.02	
Snedden	.....	.....	.....	T.	
Sonoma	.....	.....	.....	1.21	
S. E. Farallone L. H	.....	.....	.....	1.18	
Stanford University	68	34	50.9	0.23	
Stockton *a*	68	33	50.1	0.24	
Summerdale	60	20	40.6	0.72	2.0
Susanville	66	18	38.4	1.22	2.0
Tehama *1	73	30	51.7	1.35	
Tejon Ranch	77	33	53.5	0.33	
Thermalito	71	34	51.4	0.51	
Trinidad L. H	.....	.....	.....	4.50	
Truckee *1	56	4	31.5	0.80	8.0
Tulare *b*	.....	.....	.....	T.	
Tulare *c*	84	30	51.6	0.10	
Ukiah	76	27	49.2	2.49	
Upperlake	69	29	48.8	1.31	
Upper Mattole *1	78	32	47.6	8.30	
Vacaville *a* *1	71	35	52.8	0.52	
Ventura	78	38	54.8	0.10	
Volcano Springs *1	89	32	58.4	0.00	
Walnutcreek	73	36	53.5	0.20	
Westpoint	.....	.....	.....	2.67	
West Saticoy	.....	.....	.....	0.00	
Wheatland	67	33	49.0	0.69	
Williams *1	70	39	53.8	0.20	
Wilmington *1	78	43	55.4	0.00	
Wire Bridge *5	71	28	49.8	1.68	
Yerba Buena L. H	.....	.....	.....	0.20	
Yreka	61	23	40.8	2.13	T.
Yuba City *5	72	36	53.6	0.45	
Colorado.					
Arkins	.....	.....	.....	0.86	11.5
Aspen	.....	.....	.....	0.91	14.0
Boulder	64	−11	31.6	1.06	14.8
Boxelder	.....	.....	.....	0.86	10.8
Breckenridge	40	−27	14.3	2.48	45.2
Buenavista	.....	.....	.....	0.71	11.0
Canyon	64	− 9	35.4	0.52	7.5
Castlerock	56	−18	28.0	0.63	11.0
Cedaredge	58	3	32.9	0.27	2.8
Cheyenne Wells	62	− 7	28.6	0.67	5.0
Clearview *1	44	− 8	21.4	2.57	39.0
Colorado Springs	59	− 8	29.2	0.11	4.0
Cope	58	−14	26.6	0.87	11.0
Cripplecreek	48	− 8	22.6	0.66	8.5
Crook	59	−14	26.0	0.68	11.0
Delta	65	4	34.7	0.20	.....
Dumont	.....	.....	.....	1.21	19.0
Durango	60	2	33.5	0.42	4.3
Fairview	52	−17	27.4	0.31	6.0
Fort Collins	58	−23	24.8	1.12	14.8
Fort Morgan	.....	−19	.....	0.57	8.5
Fox	.....	.....	.....	1.21	8.8
Garnett	54	−16	23.8	0.06	1.2
Georgetown	43	− 4	26.0	.....	.....
Gilman	.....	.....	.....	1.27	24.5
Gleneyrie	57	− 1	29.3	0.41	6.3
Glenwood	.....	.....	.....	0.48	7.5
Greeley	58	−21	24.8	0.58	13.0
Gunnison	47	−30	14.2	0.61	8.2
Gypsum	.....	.....	.....	0.47	6.0
Hamps	57	−10	27.6	0.60	7.8
Hoehne	64	−10	31.3	0.48	5.0
Holyoke (near)	63	−17	25.6	0.79	11.0
Hugo	.....	.....	.....	0.33	5.0
Husted	56	−15	27.8	0.42	8.5
Lake Moraine	39	−13	20.4	0.81	16.0
Lamar	70	− 4	33.0	1.03	10.5
Laporte	.....	.....	.....	1.47	22.5
Las Animas	69	− 8	31.8	0.58	7.0
Lay	49	−23	21.7	0.73	13.0
Leadville (near) *1	42	− 7	17.4	2.63	43.8
Leroy	58	−13	25.5	0.96	12.2
Longs Peak	41	− 9	21.6	0.85	14.5
Mancos	60	3	34.0	0.40	3.0
Marshall Pass	.....	.....	.....	3.31	53.5
Meeker	50	−14	25.3	1.03	12.4
Mitchell	.....	.....	.....	1.04	22.5
Montrose	.....	.....	.....	0.44	6.0
Moraine	44	− 9	23.0	1.11	17.5
Pagoda	49	−23	24.1	2.61	38.0
Palmer	.....	.....	.....	0.57	10.0
Parachute	58	5	33.0	0.21	.....
Perrypark	.....	.....	.....	0.70	.....
Rangely	.....	−22	.....	0.39	6.0
Rockyford	67	−10	31.2	0.52	5.0
Ruby	.....	.....	.....	1.25	22.0
Saguache	53	− 9	26.6	0.06	1.0
Salida	55	−16	30.7	0.66	9.0
San Luis	54	−17	25.9	0.50	6.7
Santa Clara *1	58	− 7	29.6	1.44	20.0
Sapinero	.....	.....	.....	0.67	11.5
Sargents	.....	.....	.....	1.62	24.0
Seibert	.....	.....	.....	0.95	11.0
Silt	50	0	29.6	0.21	3.0
Spinney	46	−18	20.0	0.25	4.5
Sprinfield	.....	.....	.....	0.45	5.0
Strickler Tunnel	.....	.....	.....	1.24	13.5
Trinidad	70	− 9	34.4	0.91	10.0
Troutvale	45	−30	13.8	0.50	8.0
T. S. Ranch	55	8	31.8	0.51	.....
Twinlakes	.....	.....	.....	0.35	5.0
Vilas	.....	.....	.....	0.20	3.0
Wagon Wheel	56	−20	22.4	0.43	8.0
Walden	45	−32	17.9	0.72	13.0
Wallet	.....	.....	.....	1.68	20.0
Westcliffe	50	−12	26.4	0.49	8.0
Wray	64	−15	27.4	0.90	10.5
Yuma	.....	.....	.....	1.55	22.0
Connecticut.					
Bridgeport	54	0	29.7	5.99	11.6
Canton	56	− 7	24.4	9.11	9.0
Colchester	57	− 4	28.6	9.68	9.2
Falls Village	.....	.....	.....	6.00	11.0
Greenfield Hill	.....	.....	.....	6.68	9.1
Hartford *b*	56	− 4	27.4	9.99	14.5
Hawleyville	55	− 5	27.0	9.03	9.5
Lake Konomoc	.....	.....	.....	6.09	.....
Middletown	57	− 4	28.4	8.91	11.6
New London	51	− 2	26.8	4.72	11.2
North Grosvenor Dale	59	− 5	25.8	7.72	.....
Norwalk	56	− 3	27.9	5.74	10.5
Southington	56	− 3	22.4	7.70	5.5
Storrs	56	− 7	25.6	7.31	7.5
Voluntown	59	− 3	28.8	8.06	6.5
Wallingford	.....	.....	.....	8.25	.....
Waterbury	57	− 5	26.5	8.46	7.0
West Cornwall	54	−12	23.8	5.97	11.5
West Simsbury	.....	.....	.....	9.06	5.0
Winsted *1	54	− 8	22.6	.....	.....
Delaware.					
Milford	.....	.....	.....	3.16	.....
Millsboro	61	4	33.0	3.14	.....
Newark	59	4	30.8	6.18	8.5
Seaford	66	7	34.6	4.49	11.0
Wyoming	67[b]	3[f]	34.0[g]	.....	.....
District of Columbia.					
Distributing Reservoir *5	60	8	33.6	4.39	.....
Receiving Reservoir *5	62	7	33.3	3.28	.....
West Washington	70	4	33.4	4.70	20.0
Florida.					
Archer	85	19	57.2	4.39	
Bartow	84	27	61.4	4.26	
Brooksville	81	22	59.0	3.45	
Carrabelle	78	19	52.9	.....	
Clermont	85	24	60.3	3.60	
Dalkeith	78	18	54.6	6.10	
De Funiak Springs	77	16	52.5	12.55	
Deland	85	24	58.0	.....	
Ernestville	84	23	60.6	5.98	
Estero *1	83	35	63.1	.....	
Eustis	88	24	60.6	4.26	
Federal Point	82	19	56.6	2.10	
Fort Meade	86	25	60.6	1.70	
Gainesville	83	18	54.8	1.85	
Homeland	80	28	58.4	.....	
Huntington	82	22	56.0	3.67	
Hypoluxo	83	33	66.5	7.83	
Iverness	.....	.....	.....	4.59	
Jasper	80	16	53.7	5.12	
Kissimmee	82	27	60.8	2.65	
Lake City	82	16	55.6	4.49	
Lemon City	84	30	66.3	1.85	
Macclenny *4	84	23	57.0	5.28	
Manatee	82	29	59.7	3.87	
Merritt Island	82	30	61.4	1.57	
Middleburg	85	16	56.8	3.88	
Myers	83	34	62.4	3.99	
New Smyrna	86	24	59.1	2.74	
Nocatee	88	29	64.8	3.80	
Ocala	86	19	59.2	5.64	
Orange City	84	24	59.8	3.41	
Orlando	80	26	60.0	2.45	
Plant City	85	26	60.8	3.86	
Rockwell	82[d]	18[d]	58.1[d]	6.40	
St. Andrews	73	19	53.4	7.71	
St. Francis	85	22	56.6	3.80	
St Francis Barracks	80	20	54.8	3.65	
Sebastian	80	31	62.3	3.79	
Stephensville *1	81	20	53.1	3.84	
Switzerland *1	81	19	54.2	4.21	
Tallahassee	72	18	52.2	6.67	
Tarpon Springs	84	28	59.1	4.69	
Wausau	80	17	52.0	10.53	
Georgia.					
Adairsville	71	8	38.4	6.90	T.
Albany	71	15	49.1	5.88	
Allentown	72	11	45.5	10.26	
Americus	74	11	46.0	9.62	
Athens *b*	71	9	40.0	8.45	
Blakely	76	16	50.5	11.85	
Canton	.....	.....	.....	7.85	
Carlton	.....	.....	.....	7.86	
Cedartown	72	7	40.9	7.20	
Clayton	69	6	38.4	10.82	1.0
Columbus	.....	.....	.....	12.13	
Covington	75	8	41.2	10.46	T.
Dahlonega	68	0	37.8	9.84	T.
Diamond	67	2	36.8	8.22	T.
Dublin	.....	.....	.....	7.39	
Elberton	72	9	43.6	9.10	
Fitzgerald	78	12	49.8	5.87	
Fleming	78	13	49.2	3.77	
Fort Gaines	74	16	48.8	13.64	
Franklin	72	14	44.7	10.67	
Gainesville	70	8	39.0	8.84	
Gillsville	71	5	40.3	10.77	
Greenbush	70	7	39.2	6.81	T.
Harrison	74	10	46.8	9.08	
Hawkinsville	75	13	46.2	8.90	
Hephzibah	.....	.....	.....	5.30	T.
Jesup	81	13	51.2	3.59	
Louisville	75	13	46.1	7.24	
Lumpkin	75	12	47.9	12.10	
Marshallville	73	13	47.4	10.72	
Mauzy	77	14	52.6	6.59	
Morgan	72	14	48.0	12.50	T.
Newnan	71	8	39.4	9.08	
Oakdale	.....	.....	.....	6.99	
Pelham	.....	.....	.....	7.36	
Piscola	76	16	53.5	7.42	
Point Peter	69	10	39.0	8.34	
Poulan	79	14	50.0	9.59	
Putnam	74	14	46.7	11.38	
Quitman	79	12	51.4	5.62	
Ramsey	73	10	42.3	6.66	T.
Resaca	.....	.....	.....	6.41	T.
Reynolds	.....	.....	.....	6.43	
Rome	72	10	41.0	7.42	T.
Talbotton	75	11	43.8	12.76	T.
Thomasville	74	16	52.7	6.51	
Toccoa	.....	8	.....	7.80	T.
Valona	79[e]	19	51.8[e]	4.49	
Washington	.....	.....	.....	9.31	T.
Waycross	79	15	50.6	3.51	
Westpoint	.....	.....	.....	10.81	
Idaho.					
Albion	54	0	31.8	2.44	16.5
American Falls	53	− 5	31.3	1.10	.....
Atlanta	47	−11	24.1	3.40	32.5
Blackfoot	49	3	28.6	0.20	2.0
Burnside	55	−14	21.5	0.20	2.0
Challis	55	− 4	29.5	0.80	6.0
Chesterfield	46	−26	19.6	1.41	21.0
Downey	47	−12	25.0	0.80	8.0
Fort Sherman	54	− 6	29.0	1.46	11.8
Garnet	65	16	39.8	0.40	.....
Gray	46	−15	22.2	2.10	21.0
Hagerman	64	6	38.4	1.40	1.0
Idaho City	76	− 5	30.3	2.50	15.5
Kootenai	50	−19	21.9	1.80	18.0
Lake	36	−20	20.2	1.40	14.0
Lakeview	51	0	31.2	2.56	10.0
Lewiston	59	3	39.1	0.92	6.0
Lost River	44	−12	21.2	0.15	1.0
Marysville	48	−29	20.1	0.51	5.1
Moscow	48	− 2	29.4	2.63	11.5
Murray	45	−11	27.4	3.80	29.0
Oakley	54	− 2	29.4	1.45	5.0
Ola	55	5	33.6	2.06	9.6

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Idaho—Cont'd.	°	°	°	*Ins.*	*Ins.*
Paris	47	−13	20.6	0.84	12.0
Payette	60	19	37.3	0.72	0.2
Pollock	58	6	36.4	0.68	0.4
Priest River	49	−10	27.4	1.81	14.2
St. Maries	51	− 9	31.5	2.33	12.2
Soldier	44	−14	22.4	1.01	6.2
Swan Valley	50	−22	22.5	1.32	13.3
Weston	49	2	29.6	0.39	4.0
Yellowjacket	.....	.....	.....	1.49	.....
Illinois.					
Albion	66	− 9	30.0	4.24	6.2
Alexander	63	− 5	25.1	3.46	20.7
Ashton	55	−14	17.4	2.47	19.0
Astoria	60	− 4	23.4	6.99	46.0
Aurora *a*	59	−10	19.5	3.72	16.7
Bloomington	62	− 6	23.4	5.94	27.5
Bushnell	58	− 5	21.8	.....	.....
Cambridge	50	− 5	18.3	3.04	18.1
Carlinville	65	− 2	27.0	4.70	10.5
Carlyle	.....	.....	.....	2.87	5.0
Centralia	66	− 2	29.8	3.54	3.5
Charleston	59	− 4	25.8	4.52	10.5
Chemung	56	−16	13.8	3.73	25.1
Chester	.....	.....	.....	3.94	10.1
Cisne	68	− 6	29.0	2.94	2.5
Coatsburg	63	− 6	22.8	5.73	33.8
Cobden	68	− 6	32.4	4.09	6.0
Danville	65	− 6	26.9	2.13	8.0
Decatur	63	− 5	25.0	5.89	15.8
Dixon	58	−10	17.4	1.86	9.0
Dwight	60	−10	21.5	4.50	18.0
Effingham	65	− 2	27.7	3.97	5.2
Elgin	59	−11	17.4	3.41	18.1
Equality	70	−10	32.6	4.22	9.0
Flora	62	− 5	28.8	3.17	4.9
Friendgrove [1]	62	0	32.5	4.75	2.4
Galva	57	− 7	19.0	2.49	20.9
Glenwood [1]	60	−10	19.8	2.72	13.0
Grafton	.....	.....	.....	4.52	10.0
Grayville	67	− 3	31.7	5.08	6.2
Greenville	64	− 1	27.9	4.86	13.0
Griggsville	61	− 5	24.5	6.01	30.8
Halfway	68	− 6	31.7	4.02	4.0
Halliday	60	−11	29.6	3.03	4.9
Havana	.....	.....	.....	5.54	23.3
Henry	60	− 7	21.2	3.67	16.5
Hillsboro	64	− 2	26.6	4.60	11.0
Joliet	59	− 7	20.6	4.29	19.2
Kishwaukee	55	−13	16.4	3.39	15.9
Knoxville	53	− 7	18.8	3.66	17.0
Lagrange	61	− 9	19.4	3.38	20.2
Laharpe	56	− 3	20.8	4.26	30.5
Lanark	50	−19	13.8	2.35	10.9
Loami	.....	.....	.....	3.52	15.0
McLeansboro	67	− 9	30.0	3.52	6.0
Martinsville	60	− 2	27.4	2.66	5.0
Martinton	63	− 8	22.2	4.56	19.8
Mascoutah	66	− 1	27.3	3.99	14.2
Mattoon	62	0	30.4	3.59	9.3
Minonk	62	− 8	21.0	4.45	28.0
Monmouth	58	− 6	19.4	2.92	14.4
Monticello [2]	63	− 5	24.4	4.88	16.0
Morgan Park	.....	−12	.....	3.45	.....
Morrisonville	63	− 2	26.0	6.39	15.0
Mount Carmel	.....	.....	.....	4.41	7.5
Mount Pulaski	63	− 7	24.6	5.27	27.0
Mount Vernon	56	−10	26.3	2.94	7.8
New Burnside	60	− 5	32.8	3.36	10.5
Olney	59	− 4	29.2	2.99	3.2
Ottawa	60	− 7	21.8	4.53	24.0
Palestine	64	0	28.5	4.55	3.5
Pana	63	− 2	26.0	5.31	14.5
Peoria *a*	.....	.....	.....	5.35	26.5
Philo	64	− 7	23.6	4.13	13.0
Plumhill	68	− 6	29.2	3.69	8.7
Rantoul	63	− 8	23.4	2.48	18.6
Raum	66	− 5	32.8	4.17	9.5
Riley	56	−15	15.8	3.12	23.7
Robinson	67	− 1	27.9	3.69	4.5
Roundgrove	42	−14	15.2	2.56	14.3
Rushville	63	− 6	22.7	5.42	23.6
St. Charles [1]	50	−10	17.0	4.67	23.7
St. John	60	− 9	31.4	4.19	2.0
Scales Mound	46	−14	14.2	2.05	10.8
Shobonier	67	− 1	28.6	3.91	2.0
Strawn	60	− 8	22.6	3.76	14.0
Streator	61	−10	21.0	3.54	.....
Sullivan	59	− 4	25.4	5.54	11.5
Sycamore	56	−12	15.7	3.00	18.0
Tilden	67	− 9	28.8	3.05	7.5
Tiskilwa	58	− 8	18.4	3.85	20.7
Tuscola	65	− 5	24.0	5.20	12.0
Walnut	58	− 8	20.1	2.78	17.7
Wheaton [3]	46	− 7	18.2	4.09	26.5
Winchester	54	− 6	23.6	5.06	18.5
Winnebago	55	−15	13.2	3.22	26.0
Zion	49	−11	15.6	.....	.....
Indiana.					
Anderson	65	− 7	25.7	3.19	3.2
Angola	62	− 7	21.7	5.23	26.2
Auburn	65	− 7	23.4	5.00	.....
Bloomington	67	− 5	26.8	3.55	5.0
Bluffton	64	− 8	24.3	3.95	7.0
Butlerville	66	− 6	28.8	3.36	3.0
Cambridge City	65	− 9	25.9	3.58	1.8
Columbus	66	− 7	27.6	4.17	2.4
Connersville	65	− 8	26.4	3.77	1.0
Crawfordsville	51	− 7	25.6	3.51	.....
Culver	63	− 6	24.8	4.17	20.4
Delphi	67	− 7	22.0	4.30	13.5
Edwardsville	.....	.....	.....	4.07	6.2
Fairmount	65	−13	23.5	3.54	7.4
Farmland	65	− 7	25.5	4.03	3.5
Fort Wayne	65	− 8	23.6	5.11	25.0
Franklin [1]	65	0	29.2	2.88	1.5
Greencastle	65	− 7	26.4	3.50	1.6
Greensburg	63	− 9	26.0	3.68	T.
Hammond	50	− 9	19.8	3.65	16.4
Hector	62	− 9	24.6	4.41	7.0
Huntington	65	− 6	23.8	4.82	24.5
Jeffersonville	67	0	31.8	3.42	5.0
Knightstown	62	− 7	25.3	3.89	3.0
Kokomo	64	− 6	24.7	3.16	8.4
Lafayette	66	− 9	23.6	2.79	9.1
Laporte	61	− 7	22.7	3.97	33.5
Logansport	65	0	23.4	2.55	.....
Madison *a*	68	− 4	31.2	3.33	5.3
Marengo	67	− 9	30.4	5.70	6.2
Marion	65	− 9	24.6	3.96	8.7
Markle	65	− 9	23.5	3.00	10.5
Mauzy	63	− 8	26.6	4.09	4.0
Mount Vernon	64	− 3	30.2	3.47	5.3
Northfield	65	− 9	24.5	3.11	4.0
Paoli	66	− 4	29.8	4.08	5.5
Prairie Creek	.....	.....	.....	2.62	5.0
Princeton	64	− 5	28.2	3.85	1.5
Richmond	65	− 6	27.9	3.60	9.0
Rockport	65	− 7	26.6	3.87	T.
Rockville	67	− 3	32.8	4.29	6.5
Salem	63	− 7	26.5	3.26	T.
Scottsburg	65	− 5	28.8	4.01	10.8
Seymour	67	− 3	30.7	3.25	2.0
Shelbyville	68	− 5	27.6	5.10	2.5
South Bend	65	−11	27.6	4.03	1.5
Syracuse	63	− 9	22.0	3.97	23.5
Terre Haute	62	− 9	22.0	4.61	22.5
Topeka	62	− 3	27.4	3.43	1.0
Valparaiso	60	− 4	22.6	2.90	14.0
Veedersburg	60	− 8	21.2	2.75	17.5
Vevay	64	− 7	27.6	2.65	4.0
Vincennes	65	− 4	29.3	5.00	8.0
Washington	67	0	27.2	3.60	1.5
Winamac	65	− 1	31.2	2.22	T.
Worthington	65	2	24.4	2.45	1.9
Indian Territory.	64	− 4	28.3	4.44	8.0
Hartshorne	72	8	43.0	4.75	3.5
Healdton	70	9	42.3	1.06	T.
Lehigh	74	9	41.8	3.12	0.3
Muscogee	67	3	38.4	1.68	T.
Ryan	76	10	42.0	0.80	T.
Sapulpa	68	5	38.0	1.38	1.5
South McAlester	.....	.....	.....	2.85	4.3
Tahlequah	68	2	38.1	1.42	3.5
Tulsa	.....	.....	.....	1.22	.....
Wagoner	66	2	35.8	2.03	1.7
Webbers Falls	.....	.....	.....	2.56	1.5
Iowa.					
Afton	44	− 9	19.4	1.51	.....
Albia	47	−10	18.2	2.10	18.5
Algona [1]	38	−20	11.0	1.15	11.5
Alta *a*	38	−16	10.8	1.38	16.4
Amana	45	− 9	16.8	1.61	7.1
Ames *b*	.....	−12	.....	0.45	6.1
Ames (near)	.....	.....	.....	1.06	7.2
Atlantic	44	−21	15.5	1.80	18.0
Audubon	45	−15	15.3	1.25	12.5
Bancroft	39	−22	11.1	0.90	9.0
Batavia	.....	.....	.....	1.60	16.0
Baxter	45	−14	15.2	1.15	10.5
Bedford	49	−12	18.6	1.21	7.0
Belknap	51	− 7	18.1	3.09	15.5
Belleplaine	40	−13	15.6	2.17	11.2
Bonaparte	55	− 8	19.5	3.63	14.0
Britt	39	−24	11.4	0.50	4.8
Buckingham	.....	.....	.....	1.37	13.7
Burlington	55	− 4	23.2	4.27	.....
Bussey	.....	.....	.....	2.02	13.0
Carroll	44	−18	13.0	1.28	13.5
Carson	.....	.....	.....	0.66	6.8
Cedarfalls	40	−19	12.4	.....	.....
Cedar Rapids	45	−10	16.4	1.03	7.4
Centerville	54	− 8	18.6	2.00	16.0
Chariton	52	− 9	18.1	1.85	12.0
Charles City	37	−22	11.1	1.16	11.0
Chillicothe	.....	.....	.....	2.80	16.0
Clarinda	49	−10	18.7	1.25	9.4
Clearlake	38	−24	10.6	1.10	11.0
Clinton	49	−10	17.1	2.78	14.5
College Springs	46	−13	18.3	1.10	10.4
Coon Rapids	42	−15	15.2	0.75	7.5
Corning	45	−11	17.0	0.23	5.0
Council Bluffs	47	−11	17.0	0.25	5.0
Cresco	37	−23	8.2	1.15	11.5
Cumberland	.....	.....	.....	0.73	6.2
Danville	.....	.....	.....	4.57	17.0
Decorah	38	−16	11.0	1.16	4.0
Delaware	40	−15	13.4	1.42	7.0
Denison	43	−27	13.4	0.45	5.0
Desoto	46	−10	16.8	1.17	9.0
Diagonal	44	−10	13.7	0.17	.....
Dows	38	−21	11.1	0.50	5.0
Eldon	55	−11	19.0	2.73	17.4
Elkader	42	−17	14.7	1.45	7.0
Emerson	.....	.....	.....	0.56	.....
Emmetsburg	.....	.....	.....	0.62	.....
Estherville	40	−25	10.8	0.49	5.9
Fairfield	46	− 8	19.2	3.28	8.0
Fayette	39	−18	12.8	1.21	7.0
Fonda	41	−21	9.6	2.31	18.0
Forest City	36	−24	10.8	0.65	6.5
Fort Dodge	45	−22	12.2	0.60	6.0
Fort Madison	.....	.....	.....	4.50	23.5
Galva	40	−17	14.6	0.80	.....
Gilman	.....	.....	.....	0.61	T.
Gladbrook	.....	.....	.....	0.53	5.0
Glenwood	49	−12	18.3	0.50	5.0
Grand Meadow [1]	38	−10	13.0	1.35	5.0
Greene	38	−19	13.2	0.91	11.0
Grinnell	47	−12	16.4	0.88	7.2
Grinnell (near)	48	−10	16.2	1.23	.....
Griswold	43	−12	15.2	1.47	14.5
Grundy Center	.....	.....	.....	0.18	.....
Guthrie Center	40	−13	12.2	0.75	7.5
Hamburg	43	−18	16.0	1.05	9.6
Hampton	.....	.....	.....	0.95	9.5
Harlan	40	−17	12.2	0.93	10.8
Hawkeye	43	−23	14.8	1.49	14.9
Hedrick	.....	.....	.....	1.15	10.5
Hopeville	55	−10	17.4	1.66	9.0
Humboldt	47	−10	16.8	1.20	.....
Independence	38	−20	13.0	0.55	17.0
Indianola	38	−18	12.4	0.70	7.0
Iowa City	45	−12	17.8	0.79	5.9
Iowa Falls	48	−12	17.0	2.20	10.5
Keosauqua	39	−15	12.2	1.35	7.0
Knoxville	55	− 5	20.8	3.74	16.5
Lacona	48	− 9	18.2	1.51	10.2
Lansing	.....	.....	.....	2.25	14.5
Larchwood	41	−13	14.9	1.14	2.6
Larrabee	40	−16	13.9	0.22	2.2
Leclaire	43	−21	11.4	1.25	12.5
Lemars	.....	.....	.....	2.09	9.3
Lenox	42	−16	13.1	1.10	12.0
Logan	45	−12	16.8	0.56	4.9
Maple Valley	47	−24	13.6	1.30	13.0
Maquoketa	.....	.....	.....	1.25	12.5
Marshalltown	49	−12	17.4	1.10	12.5
Mason City	42	−14	16.0	1.37	10.0
Monticello	37	−22	10.4	0.20	2.0
Mooar	44	−13	13.4	1.76	8.0
Mountayr	59	− 4	19.8	2.80	.....
Mount Pleasant	48	−10	17.5	1.70	13.8
Mount Vernon *a* [1]	54	−11	16.4	2.64	.....
Mount Vernon *b*	46	−14	15.1	.....	.....
Murray	45	−12	15.2	1.90	13.2
New Hampton	.....	.....	.....	1.00	10.0
Newton	37	−18	11.5	0.60	6.0
North McGregor	43	−13	15.0	1.36	7.0
Northwood	.....	.....	.....	1.24	4.5
Odebolt	34	−23	10.4	1.50	15.0
Ogden	42	−19	14.8	1.19	11.5
Olin	41	−22	13.9	1.09	10.0
Onawa	45	−15	16.0	1.56	10.0
Osage	44	−14	16.1	1.09	14.3
Osceola	38	−23	10.1	1.33	13.3
Oskaloosa	48	−10	16.6	1.67	.....
Ottumwa	46	−12	16.4	1.71	8.3
Ovid	53	− 2	21.4	0.76	7.6
Pacific Junction	52	−10	18.0	2.56	13.2
Pella	49	−17	17.0	0.88	8.8
Plover	38	−12	16.2	0.48	4.0
Primghar	40	−18	13.2	1.10	11.0
Redoak	36	−20	8.8	0.60	6.0
Ridgeway	50	− 9	21.6	0.84	.....
Rockwell City	40	−20	13.8	1.52	7.8
Ruthven	48	−14	13.3	1.05	10.5
	47	−22	9.0	1.00	10.0

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Iowa—Cont'd.	°	°	°	*Ins.*	*Ins.*
Sac City	42	−17	13.2	1.08	10.8
Scranton	40	−14	15.2	0.72	10.5
Sheldon	37	−21	10.3	0.75	7.5
Sibley	38	−20	10.8	0.45	3.5
Sigourney	52	−10	18.4	1.98	10.0
Sioux Center	39	−15	12.5	0.95	9.5
Spencer	38	−24	7.0	.....	.....
Spirit Lake	40	−19	10.6	0.65	6.5
Storm Lake	37	−15	11.1	0.85	11.9
Stuart	42	−12	15.3	0.60	6.0
Thurman	49	−14	18.3	2.53	24.3
Toledo	43	−13	15.4	0.98	.....
Villisca	48	−12	20.1	2.43	.....
Vinton *1	41	−10	16.0	0.85	8.5
Wapello	47°	− 6°	18.0°	2.79	10.8
Washington	52	−11	16.3	2.03	9.5
Washta	.....	.....	.....	1.30	13.0
Waterloo	40	−11	13.2	1.19	6.6
Waverly	41	−15	14.1	1.24	8.2
Webster City	40	−13	15.4	0.92	9.0
Westbend *1	38	−21	11.0	1.10	11.0
Westbranch	45	−12	16.0	1.06	2.2
West Union	.....	.....	.....	0.20	2.0
Whitten	40	−16	12.2	0.60	6.0
Wilton Junction	47	− 9	17.8	2.89	15.0
Winterset	45	−10	17.2	1.30	13.0
Woodburn	.....	.....	.....	2.33	13.0
Kansas.					
Abilene	56	− 1	27.0	2.40	94.0
Achilles	.....	.....	.....	1.40	14.0
Anthony	.....	.....	.....	1.58	4.0
Atchison *a*	59	− 4	23.5	2.14	16.5
Burlington	64	− 9	27.8	2.32	12.5
Campbell	53	− 7	23.2	1.28	9.0
Chanute	70	− 5	32.0	3.40	11.0
Coburn *1	60	− 2	25.0	3.15	21.5
Colby	63	−11	26.4	1.21	10.2
Columbus	65	− 6	30.0	3.50	13.0
Cunningham	61	− 6	30.0	0.90	9.0
Delphos	61	− 1	27.8	0.81	8.0
Dresden	60	−10	25.6	1.35	13.5
Ellinwood	60	− 8	27.5	2.37	22.5
Emporia	70	.....	.....	1.75	17.5
Englewood	70	− 6	31.9	1.40	13.0
Eureka	.....	.....	.....	1.71	12.0
Eureka Ranch	64	− 6	27.3	0.93	7.5
Fallriver	64	−10	29.7	2.39	7.0
Fanning	58	−10	23.0	2.22	.....
Frankfort	54	− 5	24.1	1.75	15.0
Garden City	67	− 5	31.1	0.88	8.8
Garfield	.....	.....	.....	1.19	11.7
Gove *1	62	− 2	28.8	0.95	8.5
Grenola	64	− 6	29.9	1.58	5.0
Hays	65	− 2	28.4	1.35	13.5
Horton	49	− 6	22.8	2.52	13.0
Hutchinson	64	− 3	31.7	1.95	17.5
Independence	66	− 2	31.0	2.79	6.2
Lakin	65	− 3	31.2	0.50	5.0
Lawrence	62	− 2	25.2	3.12	22.0
Lebanon	60	− 9	25.8	1.00	9.0
Lebo	62	− 7	26.0	2.05	11.0
Little River	63	− 3	27.5	1.48	14.2
Macksville	63	− 6	29.6	0.32	.....
McPherson	60	− 2	29.3	2.74	.....
Manhattan *b*	55	− 1	25.4	2.97	24.8
Manhattan *c*	55	− 3	25.7	3.00	27.2
Marion	59	−10	28.6	2.00	19.5
Meade	63	− 3	33.8	0.61	6.1
Medicine Lodge	66	0	32.1	1.16	4.8
Minneapolis	59	− 1	27.2	1.80	14.5
Moran	62	−11	27.5	1.17	9.8
Mounthope *1	56	− 2	28.3	1.85	7.0
Ness City	63	− 3	29.1	1.00	6.5
Newton	59	− 5	29.6	1.18	11.8
Norwich	66	− 1	32.0	1.20	.....
Oberlin	.....	.....	.....	1.60	13.0
Olathe	64	− 4	25.6	2.74	22.0
Osage City	60	− 8	25.4	2.33	17.2
Oswego	67	− 5	32.6	2.02	5.0
Ottawa	59	− 4	25.4	2.88	17.0
Phillipsburg	66	− 8	26.6	0.95	9.5
Pratt	61	− 5	31.0	.....	.....
Rome *1	61	1	31.8	1.35	4.0
Russell	63	− 4	28.0	1.70	13.8
Salina	62	− 2	26.6	2.51	23.2
Scott	62	− 8	27.4	1.80	13.0
Sedan	63	− 4	30.2	3.46	9.0
Seneca	54	− 5	21.4	1.23	9.8
Toronto	62	.....	.....	2.15	16.0
Tribune	60	− 7	28.2	0.30	3.0
Ulysses *f*	70	− 5	29.8	0.60	6.0
Valley Falls	60	− 5	24.0	3.83	21.1
Viroqua	68	− 1	33.0	0.80	8.0
Wakeeney (near)	.....	.....	.....	0.85	8.5
Wallace	.....	.....	.....	0.77	7.0
Wamego *1	54	− 1	23.9	3.79	37.9
Winfield	65	1	31.4	1.94	5.0
Winona	.....	.....	.....	0.25	2.5
Yates Center	64	−13	27.5	2.85	14.8
Kentucky.					
Alpha *3	.....	2	35.2	6.62	8.2
Bardstown	69	− 1	32.0	4.72	7.0
Blandville	64	− 3	31.8	5.08	8.8
Bowling Green	68	− 1	33.3	5.30	7.5
Burnside	.....	.....	.....	5.01	7.0
Canton *1	70	2	36.6	2.69	4.6
Carrollton	66	− 2	29.6	2.86	2.5
Catlettsburg	76	− 7	32.0	3.61	5.0
Earlington	70	− 3	32.7	5.86	9.5
Edmonton	68	− 2	32.8	4.78	10.0
Eubank	69	− 3	31.5	5.31	15.0
Falmouth	.....	.....	.....	3.29	4.0
Fords Ferry	70	− 2	34.6	4.25	5.0
Frankfort	69	3	34.2	3.45	5.2
Franklin *5*	64	4	34.8	6.08	5.5
Georgetown	61	− 4	31.8	.....	.....
Greensburg	69	− 3	31.0	4.85	7.5
Henderson	69	0	29.7	5.15	5.0
Hopkinsville	66	− 9	33.2	6.88	7.0
Irvington	67	− 3	32.0	4.43	5.7
Jackson	75	4	34.8	3.99	7.5
Leitchfield	66	− 5	30.8	6.48	10.2
Loretto	68	− 5	30.1	4.94	14.3
Marrowbone	70	− 9	32.7	5.63	9.0
Maysville	71	− 2	29.2	3.60	3.0
Mount Hermon	66	− 4	33.0	5.08	6.5
Mount Sterling	69	− 1	30.8	5.82	11.0
Owensboro	69	− 1	34.1	4.41	6.6
Owenton	68	− 6	29.9	4.78	7.5
Paducah *a*	.....	.....	.....	5.61	6.2
Paducah *b*	69	0	35.1	5.78	8.7
Pikeville	62	1	32.6	3.97	6.3
Princeton	70	− 6	32.8	6.18	7.5
Richmond	70	− 5	30.9	3.29	6.1
St. John	67	− 7	32.1	5.59	7.3
Scott	66	− 6	29.2	2.79	0.9
Shelby City	69	− 5	30.8	5.08	6.0
Shelbyville	69	− 4	31.6	4.53	8.0
Vanceburg	73	0	28.4	2.45	5.0
Warfield *4*	72	0	34.2	4.21	10.5
Williamsburg	72	1	37.0	4.55	4.0
Louisiana.					
Abbeville	78	24	52.2	6.35	
Alexandria	80	16	50.6	7.20	
Amite	78	15	51.2	12.60	T.
Bastrop	76	13	47.4	5.94	T.
Baton Rouge	81	20	50.8	7.01	
Calhoun	75	13	44.4	4.77	
Clinton	78	18	51.8	9.98	0.2
Como	78	11	46.6	7.22	T.
Donaldsonville	78	18	52.4	9.30	
Emilie	75	21	51.2	6.71	T.
Farmerville	73	11	44.8	3.71	T.
Franklin	76	21	51.6	5.06	T.
Grand Coteau	77	19	51.0	5.79	T.
Hammond	79	17	52.4	7.42	T.
Houma	79	19	53.8	5.53	
Jeanerette	78	19	50.2	5.53	
Jennings	78	17	51.1	8.28	
Lake Charles	76	20	52.0	6.10	
Lake Providence	73	12	47.6	6.28	T.
L'Argent	78	16	49.5	6.83	T.
Lawrence	78	22	53.2	7.87	
Libertyhill	77	12	46.8	6.54	T.
Mansfield	75	12	46.6	3.84	T.
Melville	81	18	50.8	8.85	T.
Minden	75	12	45.4	3.11	
Monroe	76	13	46.6	5.92	
Montgomery *e*	70	16	44.1	3.72	
New Iberia	74	21	50.1	7.90	
Oakridge	76	13	44.9	10.39	
Opelousas	82°	20	48.4°	5.76	T.
Oxford	75	11	47.6	6.31	0.2
Paincourtville	80	21	53.6	6.44	T.
Plain Dealing	72	10	45.6	4.88	T.
Plaquemine	80	20	51.5	6.60	T.
Prevost	79	16	52.5	8.31	
Rayne	78	20	52.6	6.91	
Robeline	75	22	52.0	6.25	
Ruston	75	12	45.5	5.70	
Schriever	79	18	52.4	6.99	
Shellbeach	75	19	50.8	6.51	
Southern University	78	19	51.2	6.32	
Sugar Ex. Station	76	24	51.9	6.27	
Sugartown	75	18	50.8	8.92	
Venice	77	25	56.0	4.10	
Wallace	79	21	53.4	7.14	T.
White Sulphur Springs	75	17	52.4	6.86	
Maine.					
Bar Harbor	48	−11	18.2	6.20	20.0
Belfast *6*	46	− 8	23.4	8.19	17.0
Bemis	44	−30	14.0	5.96	35.5
Maine—Cont'd.					
Calais	53	−16	21.6	7.83	41.0
Carmel	46	−13	22.2	5.01	.....
Cornish *1	44	−11	20.6	9.76	36.0
Fairfield	50	−16	19.8	7.00	21.0
Farmington	47	−23	18.0	10.76	29.3
Flagstaff	45	−23	14.8	5.40	36.5
Gardiner	49	−10	21.2	8.96	23.2
Kineo	40	−30	13.7	3.47	34.8
Lewiston	48	− 9	20.4	8.69	37.0
Mayfield	43	−18	16.8	7.39	24.0
North Bridgton	48	−15	21.0	9.06	30.0
Orono	50	−21	20.5	6.75	23.0
Petit Menan *1	40	− 7	23.4	.....	.....
Rumford Falls	44	−23	17.1	7.96	27.8
Winslow	53	−16	20.7	6.27	18.0
Maryland.					
Annapolis	64	5	34.0	6.00	15.0
Bachmans Valley	56	0	28.8	8.22	12.0
Boettcherville	66	− 5	31.7	2.58	4.0
Boonsboro *a*	60	2	30.8	3.50	10.0
Cambridge	68	11	37.6	.....	.....
Charlotte Hall	70	3	34.2	4.44	8.0
Chase	60	− 3	32.0	6.02	14.0
Chewsville	61	− 4	31.2	3.82	8.0
Clearspring	54	2	28.2	4.17	6.0
Coleman	66	.....	.....	5.64	11.0
Collegepark	64	4	33.0	5.69	9.0
Cumberland	59	6	30 1	2.28	2.5
Darlington	61	3	31.2	5.42	11.0
Deerpark	72	−15	24.4	3.29	17.0
Denton	65	5	36.9	4.39	14.5
Easton	65	7	33.7	4.89	10.0
Ellicott City	65	2	30.8	6.61	13.0
Fallston	61	4	31.4	5.57	11.8
Frederick	57	6	32.4	4.62	10.0
Frostburg	63	− 4	28.2	.....	.....
Grantsville	69	−10	24.1	3.88	10.0
Greatfalls	67	− 2	30.6	4.56	.....
Greenspring Furnace	53	− 1	30.0	.....	.....
Hagerstown	56	0	30.6	4.14	6.0
Hancock	57	0	29.3	3.32	6.0
Harney	.....	.....	.....	5.00	6.0
Jewell	67	4	34.5	5.60	15.0
Johns Hopkins Hospital	66	5	30.9	6.45	21.0
Laurel	70	3	33.2	6.12	16.0
McDonogh	62	3	31.6	4.63	14.0
Mount St. Marys Coll	59	1	29.2	4.91	8.0
Newmarket	56	3	30.3	4.10	14.0
Pocomoke	66	10	39.6	3.98	.....
Princess Anne	67	5	35.3	3.76	10.3
Queenstown	63	7	33.5	5.58	14.0
Rockhall *b*	61	5	33.8	4.91	10.0
Sandy Point	60	9	38.0	.....	.....
Sharpsburg	60	4	31.6	3.81	8.5
Smithsburg *a*	60	− 3	30.3	3.59	6.0
Smithsburg *b*	63	− 1	30.0	4.18	6.8
Solomons	62	9	35.4	3.51	9.0
Sudlersville	65	5	35.1	6.39	14.0
Sunnyside	72	−15	23.2	5.28	13.0
Takoma Park	67	4	33.4	6.49	17.5
Taneytown	55	4	29.7	4.21	7.2
Van Bibber	58	5	30.3	5.82	.....
Westernport	60	3	27.8	3.60	4.2
Westminster	58	3	30.4	5.08	11.0
Woodstock	63	5	31.9	4.39	19.7
Massachusetts.					
Amherst	56	− 6	25.3	8.56	7.0
Attleboro	.....	.....	.....	8.99	.....
Bedford	56	− 5	26.0	6.05	7.0
Bluehill (summit)	56	− 8	26.5	6.82	12.0
Cambridge	59	− 4	27.9	8.18	.....
Chestnuthill	59	− 4	28.0	8.74	10.0
Cohasset	.....	.....	.....	6.17	.....
Concord	59	− 5	26.0	6.11	7.3
Dudley *1	55	− 5	26.6	6.00	8.0
East Templeton *1	53	− 9	23.1	6.90	9.0
Fallriver	52	− 2	24.0	5.86	6.0
Fiskdale	.....	.....	.....	7.75	6.0
Fitchburg *a* *1	54	− 8	23.8	7.15	9.0
Fitchburg *b*	57	− 8	24.0	8.96	10.2
Framingham	58	− 5	27.5	8.82	.....
Groton	55	− 7	23.4	9.51	13.5
Hyannis *1	50	− 2	29.6	4.74	9.0
Jefferson	.....	.....	.....	8.60	14.2
Lawrence	59	− 5	26.8	8.17	6.0
Leeds	54	−14	24.0	8.70	12.5
Leominster	.....	.....	.....	9.03	9.2
Lowell *a*	58	− 5	26.3	10.12	.....
Lowell *b*	59	− 6	25.8	.....	.....
Ludlow Center	44	−12	22.0	8.03	6.0
Middleboro	56	− 3	27.4	5.80	7.1
Monson	68	− 9	25.2	7.58	11.0
New Bedford *a*	52	2	30.8	4.62	8.0
New Salem	54	−13	22.6	7.82	10.9
Pittsfield	52	−10	22.2	6.80	3.0
Plymouth *1	55	− 4	29.2	5.37	8.0

TABLE II.—*Climatological record of voluntary and other cooperating observers.*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Massachusetts—Cont'd.	°	°	°	*Ins.*	*Ins.*
Princeton	.....	.....	.....	8.59	13.5
Provincetown	51	0	30.8	3.58	.....
Salem	.....	.....	.....	.....	.....
Somerset [1]	58	— 6	30.0	6.62	9.5
South Clinton	.....	.....	.....	6.25	8.5
Springfield Armory	58	— 2	27.4	8.81	8.0
Sterling	.....	.....	.....	8.69	12.0
Taunton [c]	56	— 6	28.0	8.76	13.0
Webster	.....	.....	.....	7.56	.....
Westboro	58	— 5	27.2	7.66	12.5
Weston	59	— 5	27.8	8.20	6.5
Williamstown [1]	52	— 2	23.9	8.17	8.1
Winchendon	.....	.....	.....	3.46	9.0
Worcester [b]	59	— 8	25.8	6.19	12.0
Michigan.				7.45	6.0
Adrian	64	— 7	30.1	3.26	21.5
Agricultural College	62	—14	17.4	3.44	25.4
Allegan	53 [d]	— 2 [d]	24.1 [d]	3.25	17.5
Alma	60	—14	17.3	3.59	27.0
Arbela	63	— 7	19.3	3.71	20.8
Baldwin	64	—15	17.2	3.00	18.0
Ball Mountain	51	—25	15.2	1.45	2.5
Battlecreek	60	—11	18.4	3.84	25.9
Bay City	60	— 9	20.2	3.66	26.3
Berlin	62	—12	17.6	2.94	15.5
Berrien Springs	60	—17	17.2	3.93	30.1
Big Rapids	62	— 2	21.5	8.00	65.5
Boon	56	—17	16.0	2.38	7.5
Calumet	54	—19	12.5	2.52	17.3
Carsonville	33	—13	9.2	1.58	19.5
Charlevoix	60	—17	17.1	3.35	18.5
Cheboygan	50	—11	17.3	2.25	16.5
Clinton	51	—17	15.2	1.45	13.0
Coldwater	62	—10	20.8	3.80	25.5
Eagle Harbor	62	— 6	21.0	3.84	20.6
East Tawas	33	—13	10.2	3.30	33.0
Eloise	52	—13	17.2	.....	.....
Fairview	65	— 5	21.0	4.19	23.5
Fitchburg	61	— 7	19.6	4.24	27.2
Flint	64	—11	18.2	4.38	33.0
Frankfort	63	—17	18.2	2.31	17.0
Gladwin	42	— 2	17.8	2.82	20.2
Grand Rapids	59	—19	15.9	2.80	11.0
Grape	59	— 1	20.8	4.60	35.5
Grayling	65	— 4	21.4	3.90	18.6
Hanover	55	—23	12.0	3.45	19.5
Harbor Beach	62	—10	18.9	3.53	23.5
Harrison	60	—15	18.5	2.37	14.7
Harrisville	56	—19	15.1	2.03	20.5
Hart	55	—17	15.8	4.19	23.2
Hastings	57	— 3	19.6	3.46	22.5
Hayes	60	—14	18.8	3 06	28.5
Highland Station	63	—29	17.2	4.68	21.0
Hillsdale	.....	.....	.....	4.41	26.0
Howell	62	— 6	20.4	4.09	25.0
Humboldt	62	—13	19.2	2.20	15.0
Ionia	32	—38	—0.8	0.44	4.5
Iron Mountain	60	—10	17.6	3.30	23.0
Iron River	57	—19	9.0	1.40	14.6
Ishpeming	35	—32	2.4	1.50	15.0
Ivan	35	—23	6.4	2.35	23.5
Jackson	54	—13	13.8	2.10	19 0
Jeddo	64	— 7	20.5	3.45	21.5
Kalamazoo	59	—14	17.6	4.34	28.2
Lake City	58	— 6	20.1	3.00	24.0
Lansing	54	—18	14.3	2.20	12.0
Lapeer	62	— 8	18.7	2.84	24.0
Lathrop	61	—19	19.3	3.25	23.5
Lincoln	36	—27	7.9	1.25	10.5
Ludington	.....	.....	.....	0.80	8.0
Luzerne	57	— 6	18.8	3.15	13.5
Mackinaw	57	—20	13.1	2.22	13.0
Madison	48	—20	13.9	2.35	13.0
Mancelona	62	— 7	20.9	4.34	21.0
Manistee	52	—16	12.8	2.96	20.0
Manistique	55	— 4	18.4	3.65	19.0
Menominee	38	—10	13.2	2.46	8.5
Midland	32	—12	10.2	.....	.....
Mottville	60	—19	17.1	1.48	14.8
Mount Clemens	62	— 9	19.7	3 77	15.1
Mount Pleasant	60	— 8	19.2	3.80	19.0
Muskegon	60	—15	17.9	2.64	18.0
Newberry	57	— 1	19.4	3.15	16.0
Northport	36	—25	10.6	0.60	5.0
Old Mission	44 [c]	— 1 [d]	17.6 [c]	2.15	18.5
Olivet	50	— 6	16.8	2.60	16.0
Omer	60	— 8	19.2	3.74	38.9
Ovid	58	—20	14.8	.....	.....
Owosso	63	—12	18.2	2.78	20.0
Petoskey	63	—10	18.1	3.50	25.0
Plymouth	50	—18	15.1	2.96	19.0
Port Austin	63	—11	19.6	4.45	24.0
Reed City	63	—20	18.4	3.15	14.0
Rogers	55 [d]	—15	15.2	1.48	7.0
Saginaw	60	—15	15.2	2.57	16.0
	63	—11	18.6	3.72	24.5

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Michigan—Cont'd.	°	°	°	*Ins.*	*Ins.*
St. Ignace	44	—21	12.8	1.60	8.0
St. Johns	61	— 9	19.0	3.80	28.5
St. Joseph	62 [d]	— 3	24.2	5.74	33.5
Sidnaw	37	—38	6.0	2.30	23.0
Somerset	62	— 8	18.3	5.15	27.0
South Haven	61	8	24.4	4.70	33.5
Thomaston	33	—38	4.2	.....	.....
Thornville	60	—20	18.6	3.47	25.5
Traverse City	42	— 5	17.9	3.00	30.0
Vandalia	61	— 9	20.4	5.23	32.6
Vassar	63	—22	19.0	2.80	18.5
Wasepi	62	— 9	30.2	4.39	23.0
Waverly	59	—15	18.1	3.79	22.0
Wetmore	35	—29	8.4	5.31	46.0
Whitecloud	55	—10	17.4	2.55	10.5
Ypsilanti	62	— 5	20.4	4.65	36.5
Minnesota.					
Ada [c]	30	—29	0.0	0.21	2.0
Albert Lea	33	—21	8.8	1.30	13.0
Alexandria	33	—23	4.8	0.21	2.1
Ashby	37	—23	4.6	0.68	8.5
Beardsley	42 [c]	—24 [c]	6.1 [c]	0.49	3.0
Bemidji	.....	—26	.....	0.30	3.5
Bird Island	36	—20	6.1	0.62	6.2
Blooming Prairie	39	—25	10.2	0.65	6.5
Brainerd	33	—24	—2.4	0.30	3.2
Caledonia	39	—30	9.2	0.77	5.8
Camden	46	—21	8.7	0.18	2.5
Collegeville	35	—15	9.0	0.30	3.3
Crookston	37	—26	2.2	0.60	7.5
Deephaven	.....	.....	.....	0.18	1.8
Detroit City	38	—34	—3.2	0.61	6.4
Faribault	38	—28	8.7	0.35	7.2
Farmington	35	—26	5.7	0.75	8.5
Fergus Falls	36	—25	4.6	0.53	7.0
Glencoe	36	—22	9.3	0.20	2.0
Grand Meadow	36	—24	9.0	1.07	12.5
Hallock	32	—37	—3.8	0.41	4.1
Lake City	39	—25	9.1	0.85	8.5
Lakeside	38	—20	8.0	0.29	3.8
Lake Winnibigoshish	36	—25	1.6	0.43	5.0
Leech	36	—35	—1.4	0.32	3.9
Leroy	40	—23	11.0	1.03	10.2
Long Prairie	33	—25	4.0	0.31	4.2
Luverne	40	—16	12.2	0.17	1.7
Lynd	47	—22	7.4	0.17	2.2
Mapleplain [1]	36	—23	7.0	0.97	11.2
Milaca	38	—28	6.2	0.40	4.0
Milan	40	—30	5.0	0.82	8.2
Minneapolis [a]	35	—21	6.2	1.00	10.0
Minneapolis [b] [1]	36*	—24	8.4	0.61	6.5
Minnesota City	.....	.....	.....	1.00	9.0
Montevideo	43	—25	5.4	0.75	8.5
Morris	36	—20	7.2	0.70	4.1
Mount Iron	35	—27	0.6	0.21	.....
Newfolden	36	—33	—3.8	0.40	4.5
New London	35	—26	4.2	0.64	5.7
New Richland [1]	36	—24	11.4	.....	.....
New Ulm	38	—19	8.1	0.58	6.0
Park Rapids	33	—30	1.2	0.41	4.1
Pine River	34	—25	2.1	0.24	3.4
Pipestone	38	—17	10.2	0.20	2.2
Pleasant Mounds	36	— 22	10.6	0.53	5.5
Pokegama Falls	37	—41	—2.4	0.31	4.2
Redwing	.....	.....	.....	1.21	15.0
Reeds	.....	.....	.....	1.22	6.5
Rolling Green	38	—17	8.7	1.00	10.0
St. Charles	39	—27	7.9	1.15	12.0
St. Cloud	39	—24	6.8	0.45	4.5
St. Peter	36	—20	11.0	0.37	3.7
Sandy Lake Dam	35	—28	1.8	0.26	4.4
Shakopee	33	—25	9.0	0.90	9.0
Tower	31	—42	1.4	0.50	5.0
Two Harbors	42	—22	7.8	0.27	2.5
Wabasha [1]	40	—21	9.9	1.33	13.5
Willmar	36	—24	6.4	0.66	3.5
Willow River	36	—35	4.4	0.22	3.6
Winnebago City	37	—20	10.9	0.55	5.5
Worthington	38	—16	8.8	0.34	3.4
Zumbrota [1]	38	—25	9.8	.....	.....
Mississippi.					
Aberdeen	68	8	38.0	1.33	T.
Americus	76	16	52.1	11.96	T.
Batesville	69	6	38.5	7.01	
Bay St. Louis	72	18	49.9	9.86	T.
Biloxi	70	19	52.4	9.87	T.
Booneville	69	6	39.8	4.59	T.
Brookhaven	76	10	43.2	8.40	T.
Canton	77	12	47.2	4.70	
Columbus [a]	.....	.....	.....	5.13	T.
Columbus [b]	73	14	41.9	3.80	T.
Corinth	.....	6	.....	3.99	
Crystalsprings	75	13	47.4	6.15	
Edwards	75	13	47.4	4.38	
Fayette	75	15	48.2	8.20	T.
Greenville [a]	71	10	42.6	5.06	T.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Mississippi—Cont'd.	°	°	°	*Ins.*	*Ins.*
Greenville [b]	75	12	43.3	5.44	T.
Hattiesburg	77	17	48.7	11.41	T.
Hernando	70	6	38.0	5.49	
Jackson	69	15	41.6	5.08	
Kosciusko	73	11	45.8	5.30	T.
Lake	72	10	45.3	8.64	
Leakesville	74	14	50.3	12.12	T.
Logtown	75	18	51.6	7.61	
Louisville	74	8	43.2	6.17	T.
Macon	74	13	43.0	5.07	
Magnolia	76	16	49.8	9.29	T.
Natchez	80	18	50.3	7.70	
Okolona	75	10	40.4	2.34	
Palo Alto	74	11	43.0	5.93	T.
Pontotoc	70	6	41.4	4.10	1.0
Port Gibson	78	16	48.8	5.51	
Ripley	66	6	39.8	6.05	T.
Stonington [1]	76	16	48.2	.....	T.
Thornton	.....	.....	.....	5.60	
Tupelo	.....	.....	.....	4.27	
University	70	6°	42.5	6.30	T.
Watervalley	70	14	46.8	5.36	T
Waynesboro	80	16	49.0	8.71	T.
Windham	73	16	47.9	11.88	T.
Woodville	77	15	49.0	8.10	T.
Yazoo City	75	12	44.0	5.23	T.
Missouri.					
Appleton City	63	— 7	27.9	1.70	12.3
Arlington	.....	.....	.....	3.75	13.5
Arthur [3]	.....	— 6	25.9	2.48	16.0
Avalon	60	— 6	22.7	5.19	29.0
Bethany	54	— 5	20.6	3.11	19.0
Birchtree	67	— 6	30.9	6.80	8.0
Boonville	.....	.....	.....	6.77	16.5
Brunswick	60	— 3	21.2	5.29	30.0
Carrollton	59	— 2	24.2	4.42	35.0
Conception	50	— 6	21.2	1.75	15.0
Cook Station	65	— 7	29.4	3.75	14.5
Cowgill [3]	52	— 6	22.6	3.50	19.5
Darksville	57	— 7	21.2	4.30	31.5
Downing	.....	.....	.....	3.20	12.8
East Lynne [3]	.....	— 4	24.6	3.22	20.7
Edgehill [3]	56	0	28.2	4.64	7.5
Edwards	64	—11	27.8	3.61	25.9
Eightmile [1]	61	— 5	26.3	3.05	14.5
Eldon	63	— 6	27.2	4.61	34.0
Elmira	61	— 7	23.0	2.56	18.0
Fairport	.....	.....	.....	1.89	13.7
Fayette	56	— 5	23.1	4.09	24.5
Fulton	63	— 3	26.2	3.59	13.5
Galena	.....	.....	.....	3.39	8.1
Gallatin [1]	59	— 5	21.9	3.80	12.8
Gayoso	66	0	36.7	5.61	3.5
Glasgow	60	— 5	23.0	4.61	24.0
Gorin	.....	.....	.....	4.72	23.2
Halfway	65	—13	29.8	4.24	13.0
Harrisonville	64	— 4	23.0	4.21	12.1
Hazlehurst	.....	.....	.....	3.63	14.5
Hermann	.....	.....	.....	3.55	17.0
Houston	65	— 7	31.3	3.26	13.0
Houstonia (near)	.....	.....	.....	4.61	26.9
Irena	.....	.....	.....	1.82	11.0
Ironton	66	— 6	28.6	5.72	11.0
Jackson [3]	59	— 4	29.4	4.79	10.2
Jefferson City	55	2	25.8	3.73	15.0
Kidder	59	— 6	21.4	3.73	18.2
Lamar	64	— 7	31.2	2.75	14.5
Lamonte	.....	.....	.....	3.06	17.9
Lebanon	55	— 9	28.6	3.49	14.0
Lexington	67	— 4	25.4	5.18	26.0
Liberty	60	— 4	23.3	4.25	19.8
Louisiana	60	— 4	26.7	5.45	27.1
McCune [1]	59	— 5	24.6	5.73	31.5
Macon	59	— 6	23.8	4.87	26.2
Marblehill	69	— 9	31.4	5.42	8.2
Marshall	60	— 7	22.4	4.53	25.7
Maryville	48	— 9	17.0	2.03	11.8
Mexico	60	— 5	24.6	4.79	29.6
Miami [3]	60	— 4	22.6	6.44	36.2
Mineralspring	62	—10	31.2	2.16	4.0
Montreal	62	— 9	28.0	3.91	17.0
Mount Vernon	62	— 6	30.6	1.10	7.5
Neosho	67	— 4	32.6	2.20	9.0
Nevada [3]	62	— 6	24.2	3.07	16.5
New Haven	62	— 1	26.8	3.30	11.0
New Palestine	60	— 4	26.6	2.86	16.3
Oakfield	63	— 3	28.8	4.25	12.2
Olden	65	—10	30.2	6.54	8.0
Oregon [a]	60	— 6	21.6	3.25	18.0
Oregon [b]	58	— 6	22.4	2.71	17.2
Palmyra [3]	56	— 4	23.3	4.02	27.5
Phillipsburg [1]	63	—11	28.6	2.40	8.1
Pickering [3]	44	— 6	18.1	1.85	8.6
Poplarbluff	70	— 4	33.5	4.85	5.0
Potosi	65	—11	27.6	7.13	19.0
Princeton	54	— 5	20.1	2.53	17.5

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Missouri—Cont'd.	°	°	°	*Ins.*	*Ins.*
Richmond	59	— 3	23.6	4.85	26.0
Rockport	.....	.....	.....	1.50	11.5
Rolla	.....	.....	.....	4.43	15.6
St. Charles	64	— 2	27.5	5.03	24.0
St. Joseph	.....	.....	....	1.67	6.5
Sarcoxie *2	.....	—12	26.0	1.78	11.0
Sedalia	65	— 8	26.1	3.17	20.0
Seymour	60	—10	28.4	3.16	6.0
Shelbina	.....	.....	.....	5.35	23.5
Sikeston	68	— 1	34.2	4.71	5.5
Steffenville	65	— 7	24.2	6.07	36.5
Sublett	58	— 8	18.6	5.76	25.0
Trenton	56	— 4	21.9	3.45	17.0
Unionville	57	— 5	21.1	.....	.....
Vichy	64	— 7	28.8	3.20	13.8
Warrensburg	60	— 6	25.5	4.81	21.4
Warrenton	63	— 3	23.3	3.78	13.9
Wheatland	.....	.....	.....	4.27	20.2
Willowsprings	64	—10	30.4	4.15	6.0
Windsor	60	—16	26.4	3.25	22.0
Wylie	66	— 5	34.6	1.54	3.5
Zeltonia	67	— 4	32.2	4.23	6.5
Montana.					
Adel	45	—43	18.6	1.20	12.0
Billings	50	—20	23.2	.....	.....
Boulder	50	—28	22.2	0.75	7.5
Bozeman	46	—24	20.4	1.60	16.0
Butte	46	—18	23.0	1.05	10.5
Canyon Ferry	50	—25	22.8	0.50	6.6
Chinook	50	—34	12.3	0.85	8.5
Columbia Falls	47	—16	22.8	.....	.....
Corvallis	64	—26	27.9	0.45	4.5
Crow Agency	52	—27	22.0	0.51	12.0
Dearborn Canyon	50	—27	20.9	1.80	18.0
Deerlodge	48	—27	25.7	0.13	1.3
Dell	45	—31	17.4	0.65	6.5
Dillon	56	—30	26.8	0.31	2.7
Ekalaka	43	—26	15.6	0.66	6.6
Fort Benton	60	—18	21.4	0.30	3.0
Fort Logan	47	—29	19.6	0.54	4.6
Glasgow	46	—38	8.0	0.54	.....
Glendive	48	—25	14.2	0.70	7.0
Glenwood	45	—30	21.3	1.20	.....
Greatfalls	48	—24	21.7	0.77	6.2
Harlem	56	—37	13.2	.....	.....
Kipp	48	—31	16.8	1.00	10.0
Lewiston	48	—30	18.0	0.50	5.0
Livingston	47	.....	.....	0.14	1.2
Manhattan	51	—30	23.3	0.40	4.0
Martinsdale	47	—30	21.8	0.70	7.0
Marysville	42	—27	18.2	1.70	17.0
Missoula	45	— 8	26.0	0.37	4.2
Ovando	43	—35	19.3	2.24	18.9
Parrot	52	—19	24.8	0.20	2.0
Plains	47	—16	27.0	0.80	8.0
Poplar	45	—34	8.7	0.30	3.0
Redlodge	52	—32	17.6	1.50	15.0
St. Pauls	48	—30	17.5	1.00	10.5
Troy	53	— 8	29.1	1.05	2.0
Twin Bridges	53	—22	22.3	.....	.....
Utica	48	—31	20.4	0.35	4.0
Wibaux	45	—29	14.8	0.20	2.0
Yale	46	—21	21.4	0.35	3.5
Nebraska.					
Agee	.....	.....	.....	1.04	6.0
Albion	51	—24	17.3	0.90	9.0
Alliance	.....	.....	.....	1.15	9.0
Alma	58	—12	23.6	1.72	16.2
Ansley	61	—23	19.5	1.25	12.5
Arapaho	.....	.....	.....	1.10	11.0
Arborville *1	52	—16	19.0	0.40	4.0
Ashland *a*	48	—16	18.7	0.62	3.5
Ashland *b* *1	45	—10	19.6	0.59	6.2
Ashton	.....	.....	.....	1.07	10.0
Auburn	50	—13	20.6	1.48	13.0
Aurora *1	52	—11	19.6	1.32	13.5
Bartley	.....	.....	.....	1.15	10.5
Beatrice	49	—13	21.0	0.75	5.0
Beaver	64	—17	25.4	1.41	11.5
Bellevue	.....	.....	.....	0.71	7.1
Benedict	.....	.....	.....	0.60	6.0
Benkleman	.....	.....	.....	1.00	10.0
Blair	46	—12	13.9	0.64	7.9
Bluehill	.....	.....	.....	0.90	9.0
Brokenbow *1	60	— 9	25.9	1.03	10.3
Burchard	.....	.....	.....	0.55	5.5
Burwell	.....	.....	.....	1.55	15.5
Callaway	62	—22	19.9	1.57	11.0
Camp Clarke	53	—17	22.8	1.20	12.0
Central City	.....	.....	.....	0.86	8.6
Chester	.....	.....	.....	1.11	.....
Clatonia	50	—15	18.0	0.97	9.7
Cody	.....	.....	.....	0.50	5.0
Columbus	53	—18	18.0	0.57	6.0
Creighton *1	.....	.....	.....	0.90	9.0
Crete	50	— 8	21.0	0.95	7.8

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Nebraska—Cont'd.	°	°	°	*Ins.*	*Ins.*
Culbertson	.....	.....	.....	1.72	15.7
Curtis	.....	.....	.....	2.40	21.0
David City	50	—14	17.0	0.80	8.0
Dawson	52	— 8	22.4	0.89	7.5
Eden	.....	.....	.....	1.30	11.5
Edgar *a*	.....	.....	.....	0.90	9.0
Elba	.....	.....	.....	1.50	15.0
Ericson	.....	.....	.....	1.30	13.0
Ewing	.....	.....	.....	1.15	11.5
Fairbury	50	—12	21.0	1.19	9.0
Fairfield	65	—17	23.0	1.25	12.5
Fairmont	52	—17	18.4	1.42	12.2
Fort Robinson	56	—20	21.0	1.14	11.4
Franklin	65	—13	22.8	1.42	14.0
Fremont	49	—18	17.2	1.10	11.0
Geneva	49	—15	18.6	1.28	12.5
Genoa	55	—21	17.8	0.58	6.5
Gering	57	—19	23.2	1.78	17.8
Gordon	.....	.....	.....	0.35	.....
Gothenburg	62	—16	23.8	1.70	15.0
Grand Island *a*	.....	.....	.....	0.84	8.4
Grand Island *b*	56	—17	21.3	1.05	10.2
Grand Island *c*	57	—15	19.4	0.47	3.8
Greeley	.....	.....	.....	1.70	17.0
Haigler	.....	.....	.....	0.70	7.0
Hartington	47	—17	10.8	1.60	16.0
Harvard	53	—15	20.8	0.93	9.3
Hastings *1	56	—11	21.9	1.30	13.0
Hayes Center	.....	.....	.....	1.67	16.7
Hay Springs	49	—20	21.5	0.20	1.5
Hebron	55	—13	21.7	1.24	11.5
Hickman	.....	.....	.....	0.95	9.5
Holdrege *1	56	—22	26.0	1.61	16.1
Hooper *1	44	—17	16.4	1.17	11.7
Imperial	65	—18	26.6	2.24	18.4
Johnstown	.....	.....	.....	0.85	8.5
Kearney	.....	.....	.....	0.65	6.5
Kennedy	57	—19	21.6	1.08	11.0
Kimball	56	—13	25.6	1.30	13.0
Kirkwood *1	59	—18	16.5	0.75	7.5
Lexington	62	—23	24.0	1.55	15.5
Lincoln *d*	49	—14	20.2	0.69	6.9
Lodgepole	61	—16	26.3	0.90	9.0
Loup	.....	.....	.....	0.53	6.0
Lynch	56	—18	17.8	0.25	2.0
Lyons	.....	.....	.....	1.70	17.0
McCook	.....	.....	.....	1.70	17.0
McCool	.....	.....	.....	0.85	9.5
Madison	54	—17	17.0	1.20	12.0
Madrid *5	55	—18	23.2	1.30	13.0
Marquette	.....	.....	.....	0.55	5.5
Mason City	.....	.....	.....	1.17	11.7
Merriman	.....	.....	.....	0.30	3.0
Minden *a*	60	—23	21.0	1.67	16.1
Minden *b*	.....	.....	.....	1.40	.....
Monroe	.....	.....	.....	0.86	8.1
Nebraska City *b* *1	50	— 6	22.3	1.20	12.0
Nemaha *1	52	—12	19.8	1.40	12.0
Nesbit	60	—17	22.3	1.11	16.5
Norfolk	55	—29	14.6	0.95	9.5
North Loup	56	—19	20.5	1.60	16.0
Oakdale	55	—24	15.8	0.98	9.9
Odell	.....	.....	.....	1.15	4.5
O'Neill	63	—22	18.5	0.95	9.5
Ord	.....	.....	.....	1.40	14.0
Ough	.....	.....	.....	2.00	20.0
Palmer *2	48	—20	20.6	0.65	6.5
Palmyra	.....	.....	.....	1.09	10.9
Plattsmouth *b*	.....	.....	.....	1.50	15.0
Pleasanthill	.....	.....	.....	1.00	7.5
Ravenna *a*	56	—18	19.8	1.40	13.7
Ravenna *b*	.....	.....	.....	1.05	10.0
Redcloud *b* *3	50	— 2	20.8	0.70	7.0
Republican *1	58	—14	22.5	0.77	7.7
Rulo	.....	.....	.....	1.05	10.5
St. Libory	.....	.....	.....	0.75	7.5
St. Paul	55	—16	19.6	0.84	8.5
Salem *1	52	— 6	23.3	0.80	8.0
Santee	52	—12	17.4	0.59	5.4
Sargent	.....	.....	.....	1.34	12.5
Schuyler	.....	.....	.....	0.67	6.0
Seward *1	54	—14	20.2	0.75	7.5
Spragg	.....	.....	.....	1.11	11.1
Stanton *1	47	—19	14.8	1.00	10.0
State Farm	50	—15	20.2	1.09	10.0
Strang	.....	.....	.....	1.10	11.0
Stratton	.....	.....	.....	1.25	12.5
Superior *3	42	—10	19.0	1.35	11.5
Syracuse	.....	.....	.....	0.80	8.0
Tablerock	.....	.....	.....	1.57	10.3
Tecumseh *b*	54	—12	22.0	0.60	6.0
Tecumseh *c*	.....	.....	.....	1.17	9.1
Tekamah	49	—18	15.8	1.40	14.0
Thedford	.....	.....	.....	1.15	11.5
Turlington	50	—11	19.4	1.18	11.1
Valentine	58	—23	20.8	0.26	.....

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Nebraska—Cont'd.	°	°	°	*Ins.*	*Ins.*
Wakefield	55	—22	14.8	0.85	8.5
Wallace	.....	.....	.....	1.17	11.7
Wauneta	.....	.....	.....	1.90	19.0
Weeping Water *1	49	—19	15.5	1.41	14.6
Wellfleet	.....	.....	.....	1.95	18.5
Westpoint	55	—17	16.8	0.99	9.9
Whitman	.....	.....	.....	1.07	10.7
Wilber *1	50	—12	20.8	1.16	9.5
Willard	.....	.....	.....	0.83	8.3
Wilsonville *1	56	—17	23.2	1.00	7.5
Winnebago	.....	.....	.....	0.52	5.2
Wisner	.....	.....	.....	0.87	8.7
Wymore	.....	.....	.....	0.71	7.0
York *1	48	—14	19.1	0.90	9.0
Nevada.					
Battle Mountain *1	48	5	33.4	0.20	2.0
Belmont	.....	.....	.....	0.05	T
Beowawe *1	53	15	31.7	0.95	4.5
Candelaria	72	15	41.4	0.07	0.8
Carlin *1	55	17	34.0	0.60	4.0
Carson City	69	17	40.1	0 38	0.1
Clover Valley	.....	.....	.....	1 59	2.0
Cranes Ranch	.....	.....	.....	0.69	.....
Duck Valley	52	5	31.2	1.17	8.3
Elko (near)	56	8	34.5	1.50	7.5
Ely	58	5	32.3	0.18	1.0
Empire Ranch	57	7	33.6	0.08	1.5
Fenelon	.....	.....	.....	0.70	7.0
Golconda *1	60	13	37.0	0.33	
Halleck *1	55	5	28.2	0.40	4.0
Hamilton	48[1]	1	30.7[f]	0.03	T.
Hawthorne	61	17	41.3	0.10	
Hot Springs *1	60	18	41.7	.....	
Humboldt *1	55	15	37.2	1.40	5.0
Lee	.....	.....	.....	1.35	16.5
Lewers Ranch	66	11	37.6	1.13	3.1
Los Vegas	76	22	46.0	0.00	
Lovelocks *1	66	14	40.2	0.46	
Martins	67	17	39.0	T.	
Mill City *1	56	10	37.3	0.20	2.0
Palisade *1	62	12	33.4	1.60	6.0
Palmetto	68	6	35.7	0.20	2.0
Reno State University	66	12	40.2	0.27	T.
Sodaville	71	10	42.0	0.03	
Tecoma	.....	.....	.....	0.20	2.0
Toano *1	53	11	28.5	0.25	2.5
Tuscarora	45	9	29.0	1.45	17.0
Tybo	57	10	35.8	0.40	6.0
Verdi *1	65	20	42.1	0.30	
Wadsworth *1	70	10	37.5	0.25	
Wells *1	55	12	34.8	T.	0.2
New Hampshire.					
Alstead	.....	.....	.....	8.09	20.5
Berlin Mills	47	—30	16.4	5.62	33.5
Bethlehem	51	—19	18.2	4.71	23.0
Brookline *1	56	— 8	24.2	9.49	12.5
Claremont	52	—20	21.3	5.66	14.0
Concord	51	—16	21.5	5.05	13.2
Durham	50	— 9	23.6	10.06	6.0
Grafton	50	—29	17.4	6.30	15.0
Hanover	49	—22	19.0	4.89	17.5
Keene	54	—20	21.6	6.46	11.9
Littleton	50	—19	17.9	3.74	20.0
Nashua	58	— 7	24.8	8.19	15.5
Newton	57	— 7	24.8	9.80	6.0
North Conway	45	—20	18.6	9.42	31.5
Peterboro	54	—16	20.6	8.18	17.3
Plymouth	47	—21	17.9	6.44	17.0
Sanbornton	51	—17	20.0	7.24	25.0
Stratford	47	—24	18.2	5.11	31.0
Warner	.....	.....	.....	10.17	18.5
New Jersey.					
Asbury Park	59	4	32.1	5.44	12.0
Bayonne	62	6	31.9	5.60	14.0
Belvidere	60	— 2	28.0	5.09	6.0
Bergen Point	62	6	32.2	6.46	11.0
Beverly	64	4	32.0	4.99	16.4
Billingsport *1	62	7	31.5	5.12	7.0
Boonton	58	— 3	27.9	6.62	5.2
Bridgeton	65	6	33.2	5.14	12.0
Camden	60	6	31.9	4.09	12.1
Cape May C. H.	63	6	33.4	4.14	10.5
Charlotteburg	58	— 5	28.6	7.88	.....
Chester	57	— 6	26.5	6.69	7.0
Clayton	58[e]	3[b]	30.6[e]	4.80	13.5
College Farm	61	4	31.2	5.46	12.4
Deckertown	59	— 4	28.2	5.49	7.5
Dover	58	— 6	28.4	6.79	8.0
Egg Harbor City	59	5	31.2	4.42	5.0
Elizabeth	60	3	30.9	6.88	13.0
Englewood	60	5	29.5	6.84	.....
Flemington	60	0	30.1	5.15	8.0
Freehold	63	3	31.2	5.59	17.0
Friesburg	65	4	32.8	4.85	12.5
Hammonton	.....	.....	.....	4.41	11.0

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
New Jersey—Cont'd.	°	°	°	*Ins.*	*Ins.*
Hanover	58	1	29.6	5.38	5.0
Hightstown	61	3	31.2	4.79	11.0
Imlaystown	65	4	33.4	4.61	12.0
Lambertville	60	4	31.1	4.62	11.8
Lebanon				5.35	8.5
Moorestown	62	4	32.2	4.95	15.8
Mount Pleasant				4.32	14.8
Newark	59	3	29.4	5.82	14.0
New Brunswick	61	4	32.0	5.65	12.2
Newton	59	— 3	27.6	4.79	
Ocean City	60	3	32.0	5.20	4.0
Oceanic	63	4	31.0	5.34	9.0
Paterson	60	5	31.8	7.58	10.0
Perth Amboy	62	0	31.8	4.97	8.0
Plainfield	61	2	30.4	6.05	10.2
Rancocas				4.66	15.2
Rivervale	65	0	30.4	6.61	16.0
Roseland	59	— 2	28.4	6.38	9.0
Salem	69	7	33.2	5.34	11.5
Somerville	60	0	31.3	5.43	11.0
South Orange	59	3	29.6	6.40	11.0
Staffordville				6.31	16.0
Toms River	58[5]	0	29.2	6.41	10.0
Trenton	62	6	33.5	4.32	12.0
Tuckerton	58	3	31.4	3.61	11.0
Vineland	65	2	33.2	3.97	7.5
Woodbine	68	1	33.0	4.35	6.0
New Mexico.					
Albert	67	11	38.4	0.37	2.0
Albuquerque	66	13	40.6	0.40	0.5
Alma	73	12	41.2	0.50	T.
Aztec	69	5	34.4	0.07	0.7
Bellranch				0.78	3.0
Bernalillo	70	15	40.6	0.16	T.
Bluewater	60	— 9	32.4	0.75	5.0
Cambray				0.70	
Carlsbad	80	20	48.9	T.	
Deming				0.46	
East Lasvegas	63	— 6	34.6	0.25	1.5
Engle	70	11	43.0	0.00	
Espanola	63	9	36.2	0.27	
Folsom	62	— 1	31.0	0.74	9.8
Fort Bayard	67	15	42.4	0.58	T.
Fort Union	68	0	35.4	0.25	0.5
Fort Wingate	65	0	37.6	0.60	6.0
Gage				0.35	
Gallinas Spring	68	— 5	37.2	0.15	1.5
Hillsboro	67	12	41.4	0.00	
Horse Springs	67	7	36.4	0.10	T.
Las Vegas Hotsprings	60	— 4	36.2	T.	T.
Lordsburg				0.10	
Los Lunas	68	13	40.8	T.	
Lyons Ranch	74	20	45.0	0.72	
Messilla Park	78	11	46.4	0.42	
Raton	62	— 1	31.0	0.88	8.8
Roswell	77	8	43.2	T.	T.
San Marcial	76	17	45.6	0.15	1.5
Socorro	72	13	42.0	0.50	
Springer	67	— 8	34.0	0.25	2.5
Strauss				0.63	
Whiteoaks	61	6	37.9	0.65	1.0
Winsors Ranch	55	— 9	29.8	1.60	
Woodbury	65	5	36.6	0.40	T.
New York.					
Adams				5.00	
Addison	53	0	25.8	2.15	1.5
Akron				3.61	
Alfred	51	— 8	20.6	1.84	5.8
Angelica	56	— 4	24.2	2.33	4.0
Appleton	55	— 1	23.2	3.61	15.3
Arcade	53	— 6	20.5	3.31	11.8
Atlanta	50	— 3	21.8	3.00	5.5
Auburn	65	— 2	25.6	2.99	6.0
Avon	52	— 1	20.8	1.99	9.5
Axton	46	—28	16.6	3.46	26.0
Baldwinsville	56	—11	24.0	3.69	14.0
Bedford *a*	56	— 3	28.5	7.43	10.2
Bedford *b*				6.51	7.0
Big Sandy[10]	48	—14	21.3		
Bolivar	50	—11	20.7	2.54	6.0
Bouckville	50	—16	19.4	2.60	14.0
Boyds Corners				7.97	
Brentwood	58	1	29.8	8.10	13.0
Brockport	57	— 3	22.8	3.88	19.8
Caldwell	50	—28	21.0	5.10	17.0
Canajoharie	50	—10	22.3	3.41	
Canton	61	—17	17.4	4.18	
Carmel	57	— 3	27.2	8.39	10.0
Carvers Falls	48	—28	19.8	4.50	7.0
Catskill	55	— 5	26.2	4.33	3.0
Cedarhill	57	— 5	26.0	2.09	
Charlotte[10]	53	4	26.6		
Chenango Forks				3.40	
Cherrycreek				4.91	
Cooperstown	54	—12	21.4	5.59	19.0
Cortland	53	— 1	24.7	1.84	6.8
Cutchogue	54	3	30.6	5.90	6.0
Dekalb Junction				3.33	
Easton				4.94	
Elba	58	— 1	22.6	3.00	9.0
Elmira	58	— 1	26.6	2.26	4.0
Fayetteville				2.67	
Fleming	56	— 2	24.4	2.53	9.0
Franklinville	52	— 8	20.5	3.38	10.2
Fulton				3.11	
Glens Falls	50	—15	21.6	4.38	12.5
Gloversville	55	—12	19.8	4.31	17.2
Greenwich	55	—20	21.6	3.78	9.5
Haskinville				2.19	5.4
Hemlock	50	0	22.2	1.64	3.8
Honeymead Brook	56	— 5	24.5	5.05	7.5
Humphrey	52	— 7	22.0	4.53	16.4
Indian Lake	52	—23	17.2	4.79	18.1
Ithaca	56	— 2	23.8	2.86	7.5
Jamestown	62	— 5	24.0	4.15	24.5
Jay	47[8]	—20[8]	18.7[6]	1.89	17.5
Keene Valley	55	—18	19.3	3.49	13.0
King Station				5.40	
Lake Placid	52	—25	14.6	2.00	20.0
Liberty	55	—12	21.5	6.55	4.0
Littlefalls	50	—14	20.2	3.09	16.0
Lockport	58	2	25.1	2.72	25.0
Lowville	49	—13	18.6	2.86	16.0
Lyndonville				1.56	
Lyons	57[4]	0[4]	24.6[4]	4.25	14.5
Mayle				2.58	26.0
Middletown	51	— 2	25.8	5.69	4.0
Mohonk Lake	53	— 5	27.0	6.00	4.0
Mount Morris	53	1	21.2	1.00	0.5
Newark Valley				2.94	6.0
New Lisbon	56	—15	20.8	3.29	7.1
North Germantown	50	— 4	25.6	4.63	2.5
North Hammond	50	—12	21.4	3.31	12.5
North Lake	48	—34	13.3	5.76	31.0
Number Four	47	—31	16.0	4.44	25.9
Nunda	60	— 2	22.9	5.63	16.5
Ogdensburg	52	—15	20.1	2.32	17.6
Oxford	53	—13	23.6	4.76	10.9
Palermo	52	—10	22.0	4.66	25.8
Penn Yan	55	0	24.4	3.09	10.0
Perry City	50	— 4	21.1	3.84	11.0
Phœnix				4.73	
Pine City				2.78	
Plattsburg Barracks	45	—13	18.5	3.16	9.7
Port Byron	53	— 4	24.0	5.01	13.0
Port Jervis	57	— 6	26.6	5.15	3.5
Poughkeepsie	56	—14	25.1		
Primrose	62	0	28.2	6.05	10.0
Richmondville	55	—11	21.0	3.61	11.0
Ridgeway	59	— 1	22.6	4.20	24.4
Rome	43	—12	18.0	2.30	
Romulus	55	— 1	24.6	3.70	4.0
St. Johnsville	49	—13	22.6	3.98	9.0
Salisbury Mills				6.34	
Saranac Lake	50	—20	14.8	2.89	21.8
Saratoga Springs	51	—11	22.0	3.57	9.5
Schenectady	56	— 8	24.0	5.34	5.1
Schenevus				3.08	
Setauket	58	— 2	31.0	5.88	2.9
Sherwood				4.06	
Shortsville	55	—10	23.2	3.02	8.4
Skaneateles				2.98	
South Canisteo	54	— 4	21.8	5.62	28.8
Southeast Reservoir				7.77	
South Kortright	53	—12	21.8	3.55	
Straits Corners	54	— 8	23.0	3.10	5.5
Ticonderoga	49	—13	21.1	4.40	19.0
Volusia	62	— 7	22.0	3.93	
Wappingers Falls	52	—12	26.4	6.99	11.0
Warwick				4.30	
Watertown	54	—15	20.6	4.01	41.0
Waverly	53	— 2	25.0	3.35	6.7
Wedgwood	50	— 4	22.1	2.57	11.0
West Berne	60	—11	21.6	4.81	20.0
West Chazy	48	—14	18.2		15.0
Westfield *a*	67	— 3	24.7	3.16	4.5
Westfield *b*	64	— 5	21.9	3.22	
Westfield *c*	69	— 3	24.6	2.92	
Williamson				3.33	
Windham	60	—13	21.7	4.45	7.2
North Carolina.					
Abshers	64	3	34.4	7.50	T.
Asheville				4.67	T.
Biltmore	65	0	34.3	6.90	T.
Bryson City				7.72	1.3
Chapelhill	70	10	39.2	5.08	
Cherryville	65	8	40.3	7.01	0.5
Currituck				4.73	T.
Edenton	70	15	42.0	4.26	T.
Fairbluff				4.89	0.3
Fayetteville	76	11	43.4	3.75	T.
Flatrock	62	0	33.8	13.24	0.5
Goldsboro	76	14	40.2	4.54	
Greensboro	67	9	36.3	5.97	
Henderson	67	9	38.5	6.25	1.0
Hendersonville	66	— 1	34.6	10.10	T.
Henrietta	69	8	39.5	10.69	T.
Highlands	56	— 6	30.6	13.84	2.0
Horse Cove	60	— 2	35.5	12.98	2.0
Kinston	74	12	43.0	6.71	T.
Linville	57	— 5	29.0	5.34	3.0
Littleton	71	12[9]	41.4[9]	6.14	1.5
Louisburg	69	9	39.4	4.78	2.0
Lumberton	66	16	41.6	6.11	T.
Mana				5.17	0.8
Marion	65	1	36.2	9.22	1.5
Marshall	68	— 1	34.6	4.07	3.1
Mocksville	67	6	37.2	4.38	T.
Moncure	71	12	42.1	3.85	
Monroe	67	7	40.4	4.93	
Mountairy	62	2	35.6	4.00	
Mount Pleasant	66	8	39.8	6.68	0.3
Murphy				6.45	4.0
Newbern	73	14	45.0	3.60	
Oakridge	65	7	37.2	5.15	0.4
Patterson[11]	60	8	33.0	8.52	T.
Pittsboro	70	4	40.1	5.99	0.2
Rockingham	70	9	42.3	5.73	T.
Roxboro	70	9	39.4	5.59	1.0
Salem	64	7	37.0	6.20	0.5
Salisbury	66	10	40.0	4.52	0.4
Saxon	66	8	38.5	6.47	1.0
Selma	71	12	39.4	4.30	
Settle	60	5	34.1	5.34	0.5
Sloan	78	14	45.6	3.73	
Soapstone Mount	69	5	36.4	5.89	T.
Southern Pines *a*		12		5.94	T.
Southern Pines *b*	70	11	41.4	4.14	0.4
Southport	70	16	46.2	3.75	T.
Springhope[11]	62	12	38.6	4.84	T.
Tarboro	75	9	41.3	5.35	T.
Washington	75	4	43.8	5.22	T.
Waynesville	66	0	36.1	6.97	T.
Weldon *a*	69	13	37.2	4.87	
Weldon *b*				4.63	T.
North Dakota.					
Amenia	36	—28	1.0	0.26	2.6
Ashley	43	—30	3.6	0.50	5.0
Berlin	38	—36	—0.3	0.44	3.9
Bottineau	28	—39	—6.0	0.80	8.0
Buxton	36	—29	—0.2	0.14	1.7
Churchs Ferry	29	—35	—1.0	0.15	1.5
Coalharbor	39	—29	1.9	0.69	6.4
Devils Lake	37	—31	—2.0	0.80	8.0
Dickinson	45	—22	13.6	0.63	5.3
Donnybrook				0.39	
Dunseith	32	—42	—2.9		
Ellendale	40	—26	8.2	0.20	2.0
Falconer	44	—34	5.8	0.65	6.5
Fargo	35	—30	—1.2	0.54	5.4
Forman	42	—27	3.9	0.11	2.0
Fort Yates		—21		0.21	2.0
Fullerton[1]	40	—30	3.8	0.46	3.9
Gallatin	37	—38	—1.4	0.44	4.4
Glenullin	42	—26	5.2	0.83	5.3
Grafton	32	—32	—1.2	0.64	6.4
Hamilton	34	—33	—2.8	0.37	3.7
Hannaford	35	—33	—0.2	0.26	2.6
Jamestown	38	—30	4.9	0.40	4.0
Larimore	32	—31	—1.0	0.25	2.5
McKinney	37	—48	—2.8	0.40	4.0
Mayville	36	—27	2.8	0.45	4.5
Medora	46	—28	13.0	0.71	7.1
Melville	38	—27	1.6	0.10	1.0
Milton	35	—35	—3.6	0.30	3.0
Minnewaukon	40	—34	—1.5	0.18	1.8
Minot	40	—35	1.0	0.80	8.0
Minto	33	—35	—1.0	0.57	5.7
Napoleon	38	—33	2.2	0.70	6.0
New England	43	—26	7.3		
Oakdale	41	—27	6.8	0.80	8.0
Pembina	33	—35	—5.4	0.46	4.8
Portal	33	—33	0.0	0.60	6.0
Power	34	—33	2.0	0.37	5.0
St. John	44	—36	—1.0	0.60	6.0
Sheyenne	40	—32	—1.4	0.08	0.8
Steele	40	—31	2.4	0.54	5.4
Towner	38	—41	—2.8	1.10	11.0
University	33	—28	0.8	0.27	2.7
Wahpeton	38	—25	7.0	0.35	3.5
Willow City	35	—40	—1.8	0.50	5.0
Woodbridge	35	—38	—4.1	0.21	2.1
Ohio.					
Akron	67	— 6	24.8	3.35	3.4
Annapolis	73	—11	26.8	3.73	5.0
Ashland				2.77	2.7
Ashtabula	68	— 7	24.0	4.55	18.0
Atwater				3.46	5.0

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Ohio—Cont'd.	°	°	°	*Ins.*	*Ins.*
Bangorville	64	−10	24.3	4.19	8.8
Bellefontaine	63	− 8	23.7	2.55	.....
Bement	.....	.....	.....	2.74	15.5
Benton Ridge	66	− 7	24.7	5.50	17.8
Bethany	64	−10	28.4	2.77	2.5
Bigprairie	64	− 7	25.8	3.85	7.0
Binola	.....	.....	.....	3.29	20.0
Bladensburg	61	− 9	24.1	4.65	7.8
Bloomingburg	65	− 8	27.7	3.33	2.0
Bowling Green	67	− 5	23.9	3.36	21.0
Bucyrus	.....	.....	.....	2.85	5.0
Cambridge	72	− 8	27.0	2.87	7.0
Camp Dennison	66	− 5	29.8	2.70	1.8
Canal Dover	68	− 7	25.9	3.12	5.0
Canton	67	−10	25.5	3.10	7.0
Cardington	64	− 7	25.0	2.69	6.3
Cedarville	.....	.....	.....	3.42	4.8
Celina	64	− 8	23.9	4.99	10.0
Circleville	70	− 5	27.4	3.31	3.0
Clarksville	66	− 7	28.6	2.72	1.4
Cleveland *a*	69	− 4	25.3	3.61	22.8
Cleveland *b*	67	− 5	23.8	2.96	13.2
Clifton	.....	.....	.....	2.93	3.0
Coalton	74	− 8	30.6	3.22	4.0
Colebrook	65	−16	23.4	2.20	10.0
Dayton *a*	.....	.....	.....	2.15	.....
Dayton *b*	64	− 9	28.5	2.66	3.5
Defiance	65	− 5	22.8	4.41	15.5
Delaware	65	− 7	25.6	3.56	8.3
Demos	70	− 6	26.0	3.64	7.5
Dupont	65	.....	.....	3.30	8.5
Elyria	65	−10	25.2	.....	.....
Findlay	67	− 6	23.6	5.19	17.5
Frankfort	70	− 6	28.8	2.96	3.0
Garrettsville	68	−18	23.4	3.45	9.3
Granville	66	− 7	26.0	3.79	6.2
Gratiot	67	− 7	26.2	3.43	7.3
Greenfield	67	− 4	30.6	3.10	3.0
Greenhill	68	−20	23.7	3.08	4.6
Greenspring	65	− 9	24.3	4.15	8.7
Greenville	62	− 6	25.3	4.14	2.0
Hanging Rock	74	− 5	32.6	3.90	8.0
Hedges	.....	.....	.....	3.11	4.5
Hillhouse	68	−17	21.2	3.56	23.5
Hillsboro	68	− 7	28.4	2.71	2.5
Hiram	65	− 8	22.9	3.26	10.5
Hudson	66	−16	23.0	4.32	6.0
Jacksonboro	63	− 8	26.5	2.86	7.6
Kenton	60	− 8	26.8	4.29	4.7
Killbuck	66	− 7	25.5	3.38	6.2
Lancaster	71	− 6	29.0	3.66	5.5
Logan	74	− 5	31.4	.....	.....
Lordstown	67	−15	22.0	3.65	5.0
Lowell	80	− 3	30.0	3.00	7.8
McArthur	73	− 7	28.9	3.60	5.0
McConnelsville	75	− 5	29.2	3.56	5.2
Mansfield	.....	.....	.....	4.75	18.5
Marietta	74	0	32.8	3.71	6.0
Marion	64	− 7	25.3	3.86	6.8
Medina	65	−12	24.4	3.04	12.0
Milfordton	63	− 9	22.6	2.65	6.5
Milligan	73	−10	28.4	2.60	5.0
Millport	69	−20	23.4	3.32	3.5
Montpelier	63	− 6	21.0	4.44	24.0
Napoleon	61	− 9	23.2	4.33	18.5
Neapolis	.....	.....	.....	3.61	17.7
New Alexandria	70	− 6	26.7	4.20	6.0
New Berlin	65	−14	24.6	2.79	3.5
New Holland	69	− 7	28.2	3.55	6.0
New Paris	63	−10	24.8	4.69	0.5
New Richmond	68	− 6	27.9	2.44	0.9
New Waterford	67	− 4	26.2	3.75	3.0
North Lewisburg	65	−10	24.0	4.00	6.5
North Royalton	65	− 9	23.6	3.02	12.5
Norwalk	66	− 7	25.0	4.74	16.0
Oberlin	65	−11	24.5	3.04	.....
Ohio State University	68	− 6	26.8	3.41	4.6
Orangeville	65	−15	23.2	2.30	10.0
Ottawa	65	− 6	25.2	4.55	10.0
Pataskala	67	− 7	26.2	4.21	6.8
Perry	.....	.....	.....	3.32	14.0
Philo	72	− 9	27.0	2.79	9.6
Plattsburg	65	− 9	25.6	3.65	4.0
Pomeroy	74	− 5	31.2	2.87	5.2
Portsmouth *a*	.....	.....	.....	3.42	4.5
Portsmouth *b*	75	− 2	33.5	3.43	4.8
Pulse	.....	.....	.....	2.87	5.0
Richwood	64	− 9	25.2	3.85	11.7
Ridgeville Corners	61	− 6	23.6	3.98	17.0
Ripley	70	− 5	30.0	3.00	2.9
Rittman	62	−12	27.8	3.59	3.0
Rockyridge	68	− 6	23.7	5.20	15.5
Rosewood	63	− 7	26.2	3.65	1.5
Shenandoah	64	−11	23.6	3.22	6.9
Sidney	63	− 6	23.6	3.56	6.0
Sinking Spring	62	− 5	29.4	2.90	5.0
Somerset	.....	.....	.....	2.78	8.0
Springboro	.....	.....	.....	2.94	.....
Strongsville	.....	.....	.....	4.08	14.5
Thurman	72	− 3	31.8	2.59	6.0
Tiffin	65	− 5	25.2	4.91	16.8
Upper Sandusky	66	− 6	24.4	4.14	11.0
Urbana	62	− 8	25.2	3.25	3.0
Vanceburg	73	− 1	31.6	4.35	7.5
Vermillion	67	− 7	24.6	3.80	20.0
Vickery	67	− 5	24.3	3.94	13.7
Walnut	.....	.....	.....	3.56	7.4
Warren	68	−11	24.9	3.80	4.0
Warsaw	68	− 8	26.1	3.65	6.5
Wauseon	64	− 6	23.2	5.75	23.6
Waverly	72	− 5	29.8	3.20	3.6
Waynesville	65	− 7	27.6	2.61	2.0
Wellington	65	−11	24.7	4.02	20.0
Westerville	66	− 4	27.4	3.01	4.8
Willoughby	.....	.....	.....	2.20	7.5
Wooster	65	−10	24.8	2.74	5.8
Youngstown	.....	.....	.....	2.81	1.7
Zanesville	.....	.....	.....	2.65	6.7
Oklahoma.					
Arapaho	70	4	37.3	0.46	0.5
Beaver	66	− 2	33.0	1.56	14.0
Burnett	70	6	39.8	0.72	T.
Edmond	67	4	35.8	0.90	1.5
Fort Reno	75	5	38.0	0.85	0.5
Fort Sill	77	7	38.6	0.85	0.5
Guthrie	69	4	37.4	0.75	1.0
Hennessey	74	2	40.6	0.95	3.0
Hopeton	67	− 3	32.4	2.02	3.0
Jefferson	68	0	33.2	1.33	3.5
Kingfisher	70	5	35.9	0.77	1.0
Mangum	75	6	39.2	0.10	T.
Newkirk	65	3	31.8	2.07	5.0
Norman	69	6	36.8	0.57	0.5
Osage	67	3	34.6	4.48	2.5
Perry	71	3	36.3	0.92	2.5
Prudence	72	3	36.4	1.16	3.9
Sac and Fox Agency	68	3	35.2	1.30	1.0
Stillwater	70	5	37.5	0.79	1.2
Waukomis	65	8	36.0	0.85	2.0
Woodward	69	5	34.5	0.71	6.1
Oregon.					
Albany *b*	.....	.....	.....	4.52	T.
Alpha	63	29	44.6	9.34	T.
Ashland *b*	65	24	41.8	3.48	0.5
Aurora [1]	61	25	43.6	3.81	2.0
Aurora (near)	58	20	42.2	4.10	2.2
Bandon	58	35	47.6	6.03	
Bay City	55	28	43.8	12.63	0.7
Blalock	60	14	39.3	0.86	2.7
Brownsville [1]	66	21	45.6	4.23	
Bullrun	49	30	39.0	8.21	T.
Burns	51	8	31.2	1.80	3.0
Burns (near) [2]	51	11	30.8	0.28	0.8
Cascade Locks	56	16	39.0	9.65	8.0
Comstock [1]	62	28	45.2	4.90	
Coquille	.....	.....	.....	5.69	
Corvallis	60	23	42.0	4.01	0.5
Dayville	62	9	38.2	1.18	3.0
Ella	.....	.....	.....	0.72	T.
Eugene	59	23	43.2	3.82	
Fairview	58	36	48.3	6.18	
Falls City	57	22	40.6	8.42	0.7
Forestgrove	56	19	39.2	4.30	1.2
Gardiner	60	35	47.0	8.81	
Glenora	58	22	42.5	14.00	5.0
Government Camp	52	2	31.6	12.33	62.5
Grants Pass	64	23	43.8	3.41	
Happy Valley	56	8	32.9	1.56	4.5
Heppner	59	1	35.1	1.88	4.0
Jacksonville	60	25	41.4	3.27	T.
Joseph	53	−10	27.8	2.45	24.5
Junction City [1]	62	26	45.0	5.05	T.
Kerby	63	19	42.2	6.38	
Klamath Falls	.....	19	.....	0.90	9.0
Lafayette [1]	58	22	42.4	3.29	3.0
Lagrande	54	− 3	34.2	3.17	15.6
Lakeview	53	11	33.2	1.71	9.5
Lonerock	59	3	30.4	1.71	6.8
McMinnville	57	20	42.0	4.63	0.9
Merlin [1]	62	22	44.5	3.40	
Monmouth *a* [1]	60	23	43.4	4.07	0.5
Monmouth *b*	59	22	42.0	3.95	T.
Monroe	59	23	42.4	4.92	T.
Mount Angel	56	22	41.8	4.60	2.0
Nehalem	.....	.....	.....	13.24	1.5
Newberg	58	21	42.1	4.27	0.5
Newbridge	54	3	31.4	0.85	3.0
Newport	62	28	45.4	8.50	
Pendleton	63	1	38.6	1.41	0.8
Placer	.....	.....	.....	4.23	
Prineville	63	5	34.0	0.90	.....
Riddles [1]	64	28	42.6	1.57	
Riverside	59	12	36.5 [f]	0.59	1.0
Salem	60	21	42.8	2.98	
Sheridan [1]	55	23	40.2	4.82	2.0
Silverlake	64°	11°	34.8°	T.	T.
Silverton [1]	63	26	44.8	3.81	3.0
Siskiyou [1]	45	22	35.8	3.55	18.5
Sparta	48	0	29.2	3.60	36.0
Springfield [1]	56	25	42.4	3.02	
Stafford	56	19	40.8	4.96	0.5
The Dalles	62	18	39.8	1.94	0.8
Toledo	63	27	43.8	5.95	
Umatilla	.....	.....	.....	0.53	0.8
Vale	58	12	35.6	0.70	1.0
Vernonia	62	18	40.6	5.82	3.0
Westfork [1]	60	28	42.4	1.59	
Weston	57	− 6	35.0	3.08	12.4
Williams	60	22	42.3	4.26	
Pennsylvania.					
Altoona	49	− 3	24.5	3.55	.....
Aqueduct	54	− 2	31.6	3.97	4.6
Athens	56	− 1	25.5	2.84	3.2
Beaver Dam	.....	.....	.....	3.29	.....
Bethlehem	.....	.....	.....	4.13	.....
Brookville	.....	.....	.....	4.54	8.7
Browers Lock	.....	.....	.....	5.47	.....
Butler	70	−17	24.2	4.01	9.3
Carlisle	57	1	28.5	4.65	5.0
Cassandra	59	− 5	25.1	4.00	4.2
Cedarrun	.....	.....	.....	1.47	0.9
Centerhall	50	− 3	26.1	4.09	3.0
Chambersburg	52	2	28.3	3.42	3.2
Coatesville	61	− 3	31.2	7.75	21.4
Confluence	81	− 9	23.6	4.02	11.5
Coopersburg	61	1	31.0	5.48	9.0
Davis Island Dam	.....	.....	.....	4.26	6.4
Derry Station	75	− 8	27.3	3.83	8.0
Driftwood	.....	.....	.....	2.66	.....
Duncannon	.....	.....	.....	3.84	0.4
Dushore	57	− 4	24.2	4.01	3.2
Dyberry	53	−10	22.2	4.02	4.5
East Bloomsburg	.....	.....	.....	2.91	0.6
East Mauch Chunk	55	− 6	27.3	6.48	3.0
Easton	59	0	29.6	5.78	6.3
Ellwood Junction	.....	.....	.....	2.93	3.0
Emporium	53	−10	25.5	2.85	1.1
Ephrata	57	2	29.8	5.15	9.1
Everett	52	− 1	26.6	3.57	2.2
Forks of Neshaminy [1]	58	− 8	30.4	4.60	7.5
Franklin	71	−13	24.4	3.39	.....
Freeport	.....	.....	.....	3.59	5.4
Girardville	.....	.....	.....	5.63	9.0
Grampian	50	− 8	22.0	3.63	6.0
Greensboro	70	.....	.....	3.57	7.0
Hamburg	.....	.....	.....	5.95	6.0
Hamlinton	55	− 7	23.4	4.55	6.5
Hawley	55	−10	24.2	4.23	6.3
Hawthorn	73	−10	25.4	6.94	7.0
Hews Island Dam	.....	.....	.....	3.00	.....
Huntingdon *a*	51	2	28.4	3.72	1.3
Huntingdon *b*	.....	.....	.....	2.68	1.6
Irwin	.....	.....	.....	3.30	5.0
Johnstown	66	− 4	27.3	4.63	5.6
Karthaus	.....	.....	.....	3.52	.....
Keating	.....	.....	.....	3.58	1.0
Kennett Square	56	0	30.8	6.79	13.6
Lancaster	56	3	29.6	5.78	7.0
Lawrenceville	58	− 2	23.9	5.10	11.2
Lebanon	52	1	29.8	5.50	5.4
Leroy	53	− 7	23.4	3.07	4.3
Lewisburg	51	0	27.9	3.92	3.5
Lockhaven *a*	49	− 5	28.2	3.33	2.0
Lockhaven *b*	.....	.....	.....	4.04	.....
Lock No. 4	.....	.....	.....	2.87	6.5
Lycippus	72	− 5	26.4	4.34	12.1
Mifflin	.....	.....	.....	4.10	1.0
Nisbet	.....	.....	.....	3.95	.....
Oil City	.....	.....	.....	3.58	7.4
Parker	.....	.....	.....	3.88	4.0
Philadelphia	60	8	33.8	4.44	10.7
Quakertown	59	− 7	28.6	5.85	10.0
Reading [3]	.....	.....	29.4	5.38	.....
Renovo *a*	.....	.....	.....	3.52	0.5
Renovo *b*	50	− 3	26.7	3.18	3.7
Saegerstown	65	−15	24.8	6.96	12.7
St. Marys	50	− 7	21.9	3.07	9.2
Scranton	51	− 3	26.4	2.75	5.0
Selinsgrove	58	3	27.9	3.59	2.2
Shawmont	.....	.....	.....	3.97	.....
Sinnamahoning	.....	.....	.....	0.54	.....
Smethport	51	−10	22.8	1.00	2.0
Somerset	70	−14	22.8	5.69	9.2
South Eaton	55	0	26.3	3.47	2.3
State College	51	− 3	25.2	3.39	3.2
Sunbury	.....	.....	.....	2.50	6.0
Towanda	56	1	26.2	2.90	2.5
Troutrun	.....	.....	.....	3.61	1.5

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Pennsylvania—Cont'd.	°	°	°	*Ins.*	*Ins.*
Uniontown	77	— 2	30.0	3.96	.....
Warren	61	—10	22.6	4.66	11.9
Wellsboro	50	— 4	25.6	4.90	8.5
Westchester	59	2	30.8	6.38	19.0
West Newton	.....	.....	.....	3.56	7.0
Westtown	56	0	30.0	5.78	9.4
Wilkesbarre	57	4	29.2	3.21	4.0
Williamsport	52	— 3	27.0	3.72	0.2
York	59	2	29.8	4.62	10.1
Rhode Island.					
Bristol	53	— 1	30.3	5.32	5.0
Kingston	54	— 5	27.8	7.19	8.0
Pawtucket	48	— 3	25.3	8.66	.....
Providence[a]	57	— 2	29.7	8.17	7.0
Providence[c]	56	— 4	28.3	8.38	6.0
South Carolina.					
Allendale	.....	.....	.....	4.74	
Batesburg	68	12	41.9	7.05	T.
Beaufort	76	17	49.6	4.06	
Blackville	73	14	45.6	3.99	T.
Calhoun Falls	.....	.....	.....	7.81	
Camden	.....	.....	.....	6.10	1.0
Cheraw[a]	65	12	38.7	4.42	T.
Cheraw[b]	.....	.....	.....	4.39	0.3
Clemson College	69	7	40.4	10.02	1.5
Conway	.....	.....	.....	5.75	0.3
Darlington	.....	.....	.....	7.07	0.5
Edisto	.....	.....	.....	4.91	0.3
Effingham	.....	.....	.....	5.17	0.3
Florence	72	13	43.7	7.42	0.2
Gaffney	.....	.....	.....	5.19	0.4
Georgetown	78	18	47.4	3.50	
Gillisonville	77	15	48.6	3.64	
Greenville	66	8	37.4	9.13	2.0
Greenwood	69	10	39.8	6.07	T.
Holland	64	9	39.0	10.61	0.2
Kingstree[a]	74	16	44.6	3.99	0.1
Kingstree[b]	.....	.....	.....	3.95	0.1
Liberty	69	1	40.0	10.21	T.
Little Mountain	68	10	43.6	7.06	0.5
Longshore	69	11	42.2	8.27	1.5
Pinopolis[*1]	70	19	47.2	2.29	T.
St. Georges	76	15	46.5	4.64	0.3
St. Matthews	71	13	44.6	4.36	0.3
St. Stephens	.....	.....	.....	3.61	0.1
Santuck	68	7	41.6	5.50	1.0
Shaws Fork	74	13	43.4	7.20	T.
Smiths Mills	.....	.....	.....	4.55	0.2
Societyhill	70	16	44.9	6.54	0.2
Spartanburg	65	8	38.6	8.19	2.0
Statesburg	73	12	45.8	7.46	0.4
Summerville	75	18	49.0	5.58	
Temperance	76	18	44.6	6.53	T.
Trenton	70	12	45.9	9.74	0.6
Trial	75	14	45.2	4.09	T.
Walhalla	68	7	39.8	9.46	0.5
Winnsboro	65	9	41.4	5.85	0.5
Winthrop College	68	8	41.4	5.08	0.5
Yemassee	75	16	47.3	1.86	T.
Yorkville	70	13	43.6	5.58	1.5
South Dakota.					
Aberdeen	43	—23	8.0	0.37	3.8
Academy	58	—16	16.0	0.07	1.0
Alexandria	52	—17	13.6	T.	T.
Armour	53	—16	15.0	0.20	2.5
Ashcroft	52	—25	18.0	0.40	4.0
Bowdle	42[e]	—24[e]	7.9[e]	0.31	3.1
Brookings	45	—22	8.0	0.20	2.0
Canton	.....	—19	.....	0.26	2.6
Centerville	.....	.....	.....	0.28	2.9
Chamberlain	57	—15	19.8	T.	T.
Clark	47	—25	10.3	0.38	3.9
Desmet	50	—20	10.4	0.50	5.0
Doland	51	—24	10.5	0.33	4.2
Elkpoint[d]	49	—11	18.0	.....	.....
Farmingdale	.....	.....	.....	0.05	0.5
Faulkton	50	—21	9.2	0.46	4.9
Flandreau	45	—20	10.8	0.26	2.3
Forestburg	52	—17	12.0	0.07	0.7
Forest City	60	—17	13.2	0.20	2.0
Fort Meade	54	—21	18.4	0.34	3.4
Gary	41	—19	3.5	0.25	5.0
Grand River School	45	—26	12.0	0.20	4.1
Greenwood	53	—15	19.8	0.44	3.6
Hartman	47	—20	11.0	0.18	2.0
Highmore	50	—20	13.6	0.06	0.4
Hotch City	51	—20	16.0	0.12	1.2
Hot Springs	68	.....	.....	0.40	4.0
Howard	42	—20	10.2	0.30	3.0
Interior	50	—22	19.6	0.05	0.5
Ipswich	46	—26	8.0	0.42	4.0
Kimball	57	—16	16.6	0.04	0.4
Leola	44	—28	4.8	0.30	3.0
Leslie	55	—21	16.2	T.	T.
Mellette	48	—29	7.8	0.40	4.0
Menno	54	—16	13.7	0.07	0.8
Milbank	42	—25	5.6	0.65	6.5
Mitchell	54	—15	15.6	0.15	1.2
Oelricks	53	—28	21.1	1.03	10.3
Parker	50	—14	14.3	0.11	2.4
Plankinton	54	—16	12.8	T.	T.
Redfield	53	—22	11.6	0.28	3.2
Rosebud	59	—22	18.5	0.90	9.0
St. Lawrence	56	—23	15.8	0.20	2.0
Shiloh	52	—16	16.5	T.	T.
Silver City	.....	.....	.....	0.65	6.5
Sioux Falls	43	—18	14.7	0.25	2.5
Sisseton Agency	36	.....	.....	0.24	2.0
Spearfish	58	—20	21.8	0.63	7.0
Tyndall	50	—16	15.2	0.30	3.0
Watertown	45	—32	6.3	0.52	5.2
Waubay	40	—27	3.6	0.45	6.0
Wentworth	44	—18	9.3	0.19	1.9
Wessington Springs	52	—22	8.8	0.05	0.5
Wolsey	.....	.....	.....	0.17	1.6
Tennessee.					
Andersonville	72	4	35.8	6.35	8.0
Ashwood	69	3	39.4	4.27	1.2
Benton	74	2	39.2	5.60	1.0
Bluff City	.....	.....	.....	3.89	4.0
Bolivar	68	4	38.4	5.94	T.
Bristol	72[j]	1[j]	34.7[j]	3.28	1.0
Byrdstown	65	— 6	36.3	9.08	11.9
Carthage	65	— 3	38.0	5.19	4.0
Charleston	.....	.....	.....	5.60	1.0
Clarksville	69	— 2	35.7	6.46	10.0
Clinton	.....	.....	.....	6.46	1.0
Decatur	71	5	38.1	6.78	1.0
Elizabethton	74	— 1	35.5	3.70	.....
Elk Valley	64	0	32.4	4.93	T.
Erasmus	66	— 4	34.4	6.75	4.0
Florence	70	2	37.3	3.28	4.0
Franklin	70	1	36.6	3.78	2.2
Grace[*1]	60	4	37.7	5.09	4.5
Greeneville	74	— 1	35.6	3.77	5.3
Harriman	70	6	36.5	6.74	0.8
Hohenwald	68	— 1	37.2	4.57	1.8
Iron City	68	3	39.2	4.85	
Jackson	71	5	38.4	2.70	
Johnsonville	71	— 4	37.1	5.59	2.0
Jonesboro[*1]	72	4	35.0	4.92	8.2
Kingston	.....	.....	.....	6.72	T.
Lafayette[*5]	57	0	33.4	4.47	5.0
Lewisburg	68	4	39.2	4.39	2.5
Lynnville	69	4	38.9	4.17	0.2
McMinnville	70	4	38.2	2.88	3.2
Maryville[*5]	73	5	37.8	5.18	2.2
Newport	74	4	37.0	4.53	2.5
Nunnelly	70	0	37.9	4.07	3.0
Oakhill	72	— 4	37.6	6.90	4.9
Palmetto	67	2	38.6	3.96	1.8
Pope	70	0	37.0	5.65	1.0
Rogersville	74	4	35.0	4.39	3.4
Rugby	68	— 9	34.2	6.24	9.0
Savannah	70	5	40.0	4.79	T.
Sewanee	63	— 1	34.8	6.53	5.0
Silverlake	66	0	31.2	4.54	4.5
Springdale	76	4	37.7	6.40	1.5
Springfield	67	— 5	36.4	5.75	7.5
Sylvia	68[e]	0[e]	33.4[e]	5.78	7.0
Tazewell	.....	.....	.....	5.74	4.0
Tellico Plains	74	.....	.....	6.26	2.0
Tracy City	63	0	35.2	6.08	4.0
Tullahoma	66	2	37.4	4.85	2.0
Union City	62	— 1	35.4	4.36	2.6
Wildersville	71	4	39.2	6.39	1.9
Yukon	67	5	38.7	5.43	3.5
Texas.					
Alvin	.....	.....	.....	4.22	
Anna	74	7	48.7	0.55	
Anson	.....	.....	.....	0.40	T.
Arthur	.....	.....	.....	1.35	
Austin[a]	77	14	49.8	0.51	
Austin[b*5]	78	13	47.9	.....	
Ballinger	77	14	45.0	0.39	
Beaumont	74	20	50.8	3.00	
Beeville	86	20	54.8	1.12	
Big Springs	.....	.....	.....	0.25	T.
Bianco	80	20	50.3	0.25	
Boerne[*1]	76	18	50.4	0.25	
Brazoria	78	19	53.2	3.28	
Brenham	78	19	51.4	2.71	
Brighton	84	22	57.3	1.73	
Brownwood	76	14	46.8	1.40	T.
Burnet[*1]	75	14	49.0	0.31	
Camp Eagle Pass	85	17	54.4	0.25	
Coleman	80	15	47.2	0.00	
College Station[2]	.....	11	49.2	2.88	
Colorado	.....	.....	.....	0.26	
Columbia	76	17	52.6	4.14	
Conroe	72	17	51.2	3.73	
Corsicana	76	16	49.4	0.28	
Cuero	78	19	51.3	1.59	
Dallas	76	12	44.2	1.07	
Danevang	81	19	54.1	1.60	
Dublin	77	14	43.8	0.40	
Duval	80	16	52.2	0.84	
Emory	73	12	48.0	0.56	
Estelle	79	10	47.0	0.36	
Forestburg	.....	.....	.....	1.40	T.
Fort Brown	81	27	57.9	0.42	
Fort Clark	82	22	52.7	0.40	
Fort McIntosh	87	19	57.6	T.	
Fort Ringgold	93	24	60.0	1.90	
Fredericksburg[*1]	79[e]	16	49.3[e]	0.24	
Fruitland	72	10	43.8	0.85	T.
Gainesville	72	10	43.8	2.23	T.
Georgetown[*1]	82[e]	14	51.0[e]	0.61	T.
Grapevine	79	12	46.0	0.24	
Hale Center	77	12	42.0	0.52	T.
Hallettsville	78	18	54.0	1.10	
Henrietta	74	9	42.4	0.19	T.
Hewitt	.....	.....	.....	0.50	
Hondo	.....	.....	.....	0.00	
Houston	.....	19	.....	4.66	
Hulen	.....	19	.....	4.30	
Huntsville	74	17	49.0	4.38	
Jacksonville	74	11	49.9	2.89	T.
Jasper	77	11	51.9	7.34	
Kaufman	76	14	48.0	.....	
Kent	.....	.....	.....	0.43	
Kerrville	80	12[e]	46.7[e]	0.45	
Lampasas	78	12	48.2	0.29	
Langtry	78	27	49.9	0.00	
Laureles Ranch	.....	.....	.....	1.40	
Llano[*5]	77	18	51.6	0.00	
Longview	72	13	45.7	3.05	T.
Luling	78	11	52.5	1.01	
Mann	.....	.....	.....	T.	
Marathon	75	10	43.6	0.45	
Menardville	.....	.....	.....	0.45	
Monahans	.....	.....	.....	1.95	
Mount Blanco	76	9	38.0	T.	T.
New Braunfels	79	18	52.7	0.74	
Panchita	.....	.....	.....	1.20	
Panter	.....	.....	.....	0.37	
Point Isabel[*1]	80	32	62.0	0.10	
Rhineland	75	12	43.4	0.15	
Rockisland	75	18	53.9	1.60	
Rockport[*1]	80	27	55.3	.....	
Runge	82	17	53.6	0.85	
Sabine	76	16	52.4	6.09	
San Antonio	81	19	55.8	0.34	
Sanderson	72	17	49.4	T.	
San Marcos	78	14	52.3	0.85	
Sherman	71	12	44.4	1.42	
Sugarland	76	18	52.5	3.55	
Sulphur Springs	71	12	45.6	0.48	T.
Temple[a]	79	15	49.0	0.38	
Turnersville	75	10	49.0	0.13	
Tyler	70	11	42.5	1.34	T.
Valentine	70	18	44.7	1.50	
Victoria	.....	.....	.....	0.75	
Waco	82	15	48.0	0.00	
Waxahachie	77	9	47.8	T.	
Weatherford	77	11	44.8	1.00	T
Wichita Falls	.....	.....	.....	0.40	
Utah.					
Alpine	.....	.....	.....	0.66	.....
Bluecreek[*1]	48	5	30.0	0.89	8.0
Brigham	.....	.....	.....	1.24	5.8
Castledale	62	6	32.4	0.00	
Cisco	60	12	33.4	T.	
Corinne	54[f]	6	33.4[e]	0.95	7.5
Deseret	68	4	33.4	0.05	1.0
Elgin	72	10	38.9	0.03	
Farmington	.....	.....	.....	2.45	19.5
Fillmore	66	4	35.0	0.45	.....
Fish Springs	62	14	36.5	0.80	7.0
Fort Duchesne	59	— 2	24.4	0.00	
Frisco	63	10	36.2	0.04	T.
Giles	66	4	35.4	0.00	
Grover	59	3	32.6	0.00	
Heber	52	— 8	27.6	1.50	15.0
Huntsville	.....	.....	.....	1.86	17.0
Kanab	.....	.....	.....	0.00	
Kelton[*1]	55	8	33.1	0.25	1.0
Levan	57	6	32.7	0.70	7.5
Loa	57	0	29.2	0.10	1.0
Logan	50	5	30.6	0.78	.....
Manti	60	0	33.4	0.25	2.5
Marysvale[*1]	48	4	25.6	0.95	14.0
Meadowville	.....	.....	.....	1.77	17.5
Millville	.....	.....	.....	1.07	.....
Minersville	62	7	35.7	0.20	0.5
Moab	67	11	38.6	0.12	
Mount Pleasant	60	6	32.6	0.60	6.0
Pahreah	65	15	40.9	0.00	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Utah—Cont'd.	°	°	°	*Ins.*	*Ins.*
Park City	46	4	26.1	1 87	18.7
Parowan	62	4	34.4	0.23	2.3
Pinto	59	2	32.1	0.27	0.8
Promontory *[1]	48	0	25.6	0.65	6.5
Provo	61	5	35.6	0.35	.....
Richfield	55	6	30.6	0.20	2.0
St. George	73	9	41.6	0.00	
Scipio	61	5	33.2	0.20	2.0
Snowville [f]	49	4	30.5	0.76	3.0
Soldier Summit	48	−10	21.2	1.80	18.0
Terrace *[1]	65	20	33.9	T.	T.
Thistle	60	3	32.4	0.47	4.7
Tooele	56	7	32.7	0.78	.....
Tropic	58	0	31.5	T.	T.
Vernal	50	6	27.4	0.12	0.4
Woodruff	45	−24	19.9	1.20	12.0
Vermont.					
Bennington	58	−21	24.0	3.95	15.0
Brattleboro	50	−10	23.0	6.90	13.0
Burlington	45	− 7	22.6	2.17	14.0
Chelsea	44	−18	17.5	4.20	28.0
Cornwall	54	−14	20.7	3.86	14.0
Derby	45	−22	16.5	3.06	.....
Enosburg Falls	50	−29	17.5	3.65	36.5
Hartland	49	−27	17.8	5.95	17.8
Jacksonville	49	−19	18.9	12.74	39.1
Manchester	51	−12	21.2	4.58	6.8
Norwich	49	−23	17.6	5.66	15.0
St. Johnsbury	45	−25	15.4	4.73	26.5
Vernon	.....	.....	.....	7.22	9.5
Wells	55	−20	19.4	4.75	12.5
Woodstock	44	−25	17.4	4.76	19.0
Virginia.					
Alexandria	67	6	34.4	4.49	10.4
Ashland	70	5	36.2	5.09	3.0
Barboursville	65	1	32.2	4.45	10.0
Bedford	60	7	31.8	5.57	2.0
Bigstone Gap	74	4	35.3	5.24	4.5
Birdsnest *[1]	60	12	37.5	3.95	1.5
Blacksburg	69	0	30.0	3.95	4.5
Bon Air	70	6	37.0	4.10	3.0
Buckingham	71	− 3	33.6	5.42	0.7
Burkes Garden	63	− 6	29.0	4.83	7.5
Callaville	69	7	37.1	4.44	1.0
Charlottesville	68	4	34.4	4.00	7.0
Christiansburg	.....	.....	.....	3.53	4.0
Cliftonforge	67	6	31.6	4.92	1.2
Columbia	70	0	35.6	3.80	5.0
Dale Enterprise	70	− 7	30.3	2.87	8.0
Doswell	68	3	31.1	3.32	6.0
Farmville	70[f]	10[f]	38.6[f]	5.15	2.0
Fredericksburg	71	5	34.4	4.73	9.0
Freeling	53	8	33.7	3.39	4.5
Grahams Forge	60	1	30.7	3.57	4.0
Hampton	67	15	40.9	3.51	1.0
Hot Springs	68	0	30.0	5.86	5.7
Lexington	63	0	32.8	4.38	7.0
Manassas	70	2	34.0	3.71	13.5
Marion	78	0	32.6	4.34	3.0
Meadowdale	63	− 5	26.7	3.53	11.1
Newport News	66	15	42.6	1.42	T.
Petersburg	70	10	38.8	4.54	4.3
Quantico	60	4	31.0	.....	.....
Radford	.....	.....	.....	2.57	6.0
Rockymount	65	2	34.5	5.89	4.0
Salem	70	8	37.2	4.03	2.5
Scottsburg	68	10	38.2	3.94	2.0
Speers Ferry	.....	.....	.....	5.33	2.0
Spottsville	70	6	38.0	4.10	1.5
Stanardsville	69	3	33.2	3.56	8.0
Staunton	71	2	33.3	3.38	6.4
Stephens City	76	2	32.0	4.13	15.0
Sunbeam	71	8	40.1	4.65	.....
Tobaccoville	.....	2	.....	4.53	3.5
Warrenton	67	8	35.2	4.79	16.0
Warsaw	68	3	35.2	3.86	4.0
Westpoint	69	6	35.8	2.45	4.0
Woodstock	70	− 5	32.2	3.88	20.0
Washington.					
Aberdeen	57	22	41.2	9.11	3.0
Anacortes	.....	.....	.....	3.13	2.0
Ashford	.....	.....	.....	6.74	12.3
Bremerton [e]	57	22	41.0	4.17	0.6
Bridgeport	67	4	33.9	.....	.....
Brinnon	53	23	39.6	5.80	3.6
Cedar Lake	.....	.....	.....	9.10	18.0
Cedonia	46	− 8	24.8	1.35	11.7
Centerville	58	4	34.2	1.76	5.5
Chehalis	55	21	40.6	5.06	4.0
Cheney	.....	.....	.....	0.92	11.0
Clearwater	57	24	41.2	14.86	2.4
Cle Elum	52	− 3	31.1	3.65	26.0
Colfax	53	5	33.4	1.99	5.5
Colville	54	− 9	29.0	1.01	7.5
Conconully	52	−11	26.4	0.43	3.5
Connell	.....	.....	.....	0.33	3.0

Stations	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Washington—Cont'd.	°	°	°	*Ins.*	*Ins.*
Coulee City	54	2	30.7	0.63	5.0
Coupeville	55	20	40.2	1.69	T.
Crescent	50	− 4	28.4	1.55	8.2
Dayton	57	− 3	33.0	1.78	7.3
Ellensburg	55	5	32.2	0.70	5.0
Ellensburg (near)	56	7	32.3	0.31	0.7
Grandmound	54	16	40.2	4.59	4.2
Hooper	57	6	35.2	0.99	5.0
Kennewick	62	1	37.7	0.56	4.8
Lacenter	57	19	39.2	5.81	2.0
Lakeside	54	6	31.5	0.85	2.5
Lind	52	− 2	29.4	1.25	6.0
Loomis	55	1	30.8	.....	.....
Mayfield	61	29	46.6	6.95	T.
Montecristo	49	2	32.0	15.23	56.5
Mottinger Ranch	59	8	38.7	0.48	1.2
Mount Pleasant	56	16	40.0	5.77	1.5
Moxee Valley	62	3	33.2	0.30	2.5
New Whatcom	57	13	41.2	2.77	5.5
Northport	52	−22	24.5	1.56	15.0
Olga	55	10	39.0	3.08	2.5
Olympia	56	25	42.4	5.37	1.0
Pinehill	55	11	37.4	3.41	11.7
Pomeroy	53	2	34.6	2.27	14.0
Port Townsend	58	22	42.2	1.59	T.
Pullman	56	− 1	32.3	2.74	12.0
Republic	54	−16	25.8	1.03	10.0
Ritzville	.....	.....	.....	0.68	6.8
Rosalia	49	− 1	30.2	1.44	6.6
Sedro	54	17	40.5	5.94	2.3
Shoalwater Bay *[16]	53	26	43.6	.....	.....
Snohomish	57	19	41.6	5.11	T.
Snoqualmie	68	30	46.0	5.39	.....
Southbend	60	25	43.2	9.93	3.0
Sprague	.....	.....	.....	0.86	7.0
Sunnyside	62	4	34.6	0.45	3.3
Twin	60	20	40.2	4.95	4.5
Union	5	19	40.1	8.17	5.4
Vancouver	60	18	41.8	3.90	1.8
Vashon	57	21	41.0	4.98	1.5
Waterville	49	− 4	27.4	0.62	6.2
Wenatchee (near)	56	− 1	29.4	1.57	14.5
Westsound	58	12	39.9	2.44	3.0
Wilbur	50	− 4	28.0	0.93	4.7
West Virginia.					
Beckley	75	− 5	29.8	4.28	13.0
Beverly	78	−10	29.6	5.09	20.0
Bluefield	72	− 5	30.8	4.08	11.5
Buckhannon *b*	77	− 8	29.3	4.99	19.0
Burlington	64	− 3	29.4	2.99	8.5
Cairo	80	− 4	30.9	.....	.....
Central	80	− 5	30.2	3.77	10.5
Charleston	.....	.....	.....	3.43	14.0
Dayton	80	− 5	31.0	4.79	5.0
Eastbank	69	5	34.9	3.31	11.0
Elkhorn	75	0	33.2	3.55	11.2
Fairmont	.....	.....	.....	3.42	6.2
Glenville	76	− 2	31.1	5.24	16.5
Grafton	80	− 5	29.4	3.95	9.0
Green Sulphur Springs	78	5	32.2	3.58	8.0
Harpers Ferry	..	.....	.....	4.68	13.5
Hinton *a*	.....	.....	.....	3.31	10.1
Hinton *b*	73	1	32.4	.....	.....
Huntington	77	3	32.4	3.79	6.2
Madison	83	5	37.5	5.62	10.0
Marlinton	71	− 4	28.1	5.22	7.0
Martinsburg	57	3	29.4	4.54	.....
Morgantown	80	− 3	31.0	2.96	5.0
New Martinsville	79	− 1	31.1	4.26	7.8
Nuttallburg	76	− 1	32.0	5.53	19.2
Oceana	76	− 5	33.0	4.86	.....
Oldfields	71	− 7	27.3	3.28	12.0
Parsons	72	− 4	25.8	3.75	9.0
Philippi *a*	82	− 5	31.6	4.18	14.3
Point Pleasant	75	− 4	30.7	5.26	4.0
Romney	60	3	30.0	2.31	6.0
Rowlesburg	.....	.....	.....	3.92	10.0
Spencer	80	− 1	33.2	3.77	11.0
Terra Alta	75	−10	26.2	3.05	6.0
Uppertract	67	− 5	31.0	2.78	12.0
Wellsburg	73	− 5	26.7	3.22	6.5
Weston *a*	.....	.....	.....	5.06	10.5
Weston *b*	83	− 1	32.0	.....	.....
Wheeling *a*	.....	.....	.....	3.21	7.3
Wheeling *b*	78	0	32.6	3.30	4.5
Wisconsin.					
Barron	38	−28	2.1	0.86	8.6
Bayfield	31	−21	6.4	1.00	10.0
Beloit	52	−11	16.2	2.80	11.0
Brodhead	44	−12	14.4	3.21	15.0
Butternut	44	−34	6.9	1.30	13.0
Chilton	60	−15	15.0	0.50	
Citypoint	40	−20	10.8	.....	.....
Delavan	55	−13	15.6	1.23	13.5
Dodgeville	41	−15	13.4	1.37	9.0
Easton	42	−18	9.2	1.34	6.0

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Wisconsin—Cont'd.	°	°	°	*Ins.*	*Ins.*
Eau Claire	36	−23	8.0	1.49	14.5
Florence	34	−23	7.8	1.60	16.0
Fond du Lac	42	−14	14.2	1.69	7.0
Grand River Locks	.....	.....	.....	1.42	6.5
Grantsburg	35	−33	4.0	1.42	14.2
Gratiot	40	−14	15.3	1.40	8.0
Hartford	42	−15	14.8	2.77	11.5
Hartland	44	−11	14.6	2.75	7.0
Harvey	42	−12	15.0	2.69	11.4
Hayward	35	−32	5.5	1.50	15.0
Heafford	33	−39	3.0	1.61	16.1
Hillsboro	42	−20	11.0	1.20	5.5
Knapp	38	−30	4.6	0.51	5.1
Koepenick *[1]	40	−18	7.4	1.30	18.0
Lancaster	41	−11	10.4	1.14	7.5
Madison	40	−12	13.0	1.71	9.0
Manitowoc	38	−12	15.2	1.89	10.2
Meadow Valley	41	−18	8.4	0.96	9.0
Medford	41	−29	4.8	1.10	11.0
Menasha	.....	.....	.....	1.44	5.2
Neillsville	36	−22	6.4	1.48	5.0
New Holstein	38	−12	13.5	2.50	12.0
New London	43	−17	10.9	3.69	5.0
North Crandon	.....	.....	.....	1.00	10.0
Oconto	45	−14	14.1	1.77	9.5
Osceola	35	−39	3.8	0.92	11.0
Oshkosh	41	−17	14.6	1.05	.....
Pepin	40	−28	8.4	1.37	10.0
Pine River	41	−19	12.1	1.88	7.1
Portage	40	−12	12.8	1.40	4.0
Port Washington	45	−11	16.4	3.10	17.0
Prairie du Chien	43	− 8	14.7	1.17	4.8
Racine	47	−10	18.2	2.71	.....
Sharon	54	−13	13.6	2.42	15.0
Shawano	40	−14	10.8	1.06	3.0
Sheboygan	39	− 6	16.3	0.45	3.5
Spooner	39	−28	8.2	3.20	32.0
Stevens Point	39	−19	9.9	0.41	4.0
Sturgeon Bay Canal *[9]	41	−26	12.4	.....	.....
Westfield	40	−17	12.3	0.80	4.0
Whitehall	42	−26	9.1	1.00	13.2
Wyoming.					
Alcova	49	−22	23.4	0.68	8.0
Basin	43	−36	11.6	T.	T.
Bedford	45	−18	21.2	2.03	19.6
Bigpiney	40	−20	16.4	1.00	10.0
Buffalo	55	−24	21.5	0.13	1.3
Burlington	56	−29	21.0	0.20	2.0
Burns	53	−21	13.9	0.55	5.5
Carbon	43	−14	23.2	0.85	.....
Centennial	44	−18	20.6	4.00	40.0
Cody	60	−21	25.3	0.45	4.5
Dome Lake	.....	.....	.....	1.50	15.0
Embar	55	−23	23.4	0.50	5.0
Evanston	58	−15	17.4	1.33	13.3
Fort Laramie	56	−20	25.1	0.90	7.0
Fort Washakie	54	−31	18.8	1.00	10.0
Fort Yellowstone	.....	−25	.....	1.65	16.5
Fourbear	48	−32	19.1	0.73	11.7
Hyattville	50	−29	20.4	0.05	1.5
Iron Mountain	46	−21	22.1	0.90	.....
Kimball Ranch	52[c]	−24[c]	22.5[c]	0.48	4.8
Laramie	44	−19	19.6	0.82	8.8
Lovell	47	−32	18.4	0.21	2.1
Lusk	48	−26	19.2	0.15	1.5
Parkman	52	−35	21.8	0.42	11.5
Rawlins	44	−30	19.7	1.02	10.2
Sheridan	50	−30	20.6	0.65	6.5
Sherman	.....	.....	.....	2.30	23.0
Thayne	46	−19	21.6	1.49	19.4
Thermopolis	50	−32	20.0	0.85	8.5
Wamsutter	50	0	29.9	0.40	4.0
Puerto Rico.					
Adjuntas	85	49	67.5	0.63	
Aguadilla	88	71	78.6	1.32	
Arecibo	87	60	73.0	0.87	
Bayamon	94	59	75.6	1.06	
Caguas	89	59	73.3	1.62	
Canovanas	86	62	75.2	1.94	
Cayey	81	53	69.2	2.08	
Comerio	89	46	67.1	0.74	
Corozal	92	55	72.6	2.32	
Fajardo	86	67	76.4	0.65	
Hacienda Coloso	92	59	74.6	0.63	
Humacao	86	63	75.2	0.12	
Isabela	83	65	75.0	1.46	
La Isolina	86	60	72.2	1.32	
Lajas	91	59	77.4	0.80	
Luquillo	84	65	73.8	3.17	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Puerto Rico—Cont'd.	°	°	°	*Ins.*	*Ins.*
Manati	91	58	74.4	1.65	
Maunabo	87	68	76.6	0.94	
Mayaguez	91	63	76.4	1.06	
Morovis	90	58	73.7	2.00	
Port America	90	50	74.1	1.33	
Puerta de Tierra	88	68	76.8	1.77	
San German	85	60	72.4	0.33	
San Lorenzo	89	59	73.2	1.42	
Vieques	89	67	76.2	3.85	
Yanco	98	56	75.8	0.28	
Mexico.					
Ciudad P. Diaz	82	27	56.6	0.25	
Leon de Aldamas	79	36	59.4	0.04	
Puebla	73	46	61.3	T.	
Topolobampo *1	85	49	64.5	1.92	
New Brunswick.					
St. John	47	— 9	22.6	.....	
Late reports for January, 1900.					
Alaska.					
Sitka	48	23	35.7	8.71	T.
Arizona.					
Walnutgrove	.....	.....	.....	0.00	
California.					
Ogilby *1	84	51	62.8	0.00	
San Miguel Island	74	43	56.4	1.76	
Santa Paula	81	40	60.8	1.67	
Upperlake	73	30	50.8	3.98	
Indiana.					
Edwardsville	.....	.....	.....	3.29	0.9
Louisiana.					
L'argent	79	19	51.6	2.25	T.
Venice	75	30	52.4	5.06	
Massachusetts.					
Leicester	52	— 2	24.6	2.45	5.0
New Mexico.					
Shattucks Ranch *4	65	15	40.5	1.75	17.0
Winsors Ranch	59	0	30.8	1.10	.....
New York.					
Elmira	54	2	29.5	.....	.....
North Dakota.					
Bottineau	.....	—30	.....	0.37	3.7
Oregon.					
Langlois	72	29	50.6	10.34	
Pennsylvania.					
Forks of Neshaminy *1	54	9	30.7	.....	.....
South Dakota.					
Grand River School	62	—17	22.6	0.04	1.0
Texas.					
Menardville	.....	.....	.....	1.72	
Mount Blanco	74	13	40.6	0.05	
Panchita	...	.....	.....	1.50	
San Antonio	76	23	54.0	5.15	
Washington.					
Snoqualmie	61	34	47.0	6.88	
Wyoming.					
Dome Lake	.....	.....	.....	1.90	19.0
Cuba.					
Aguacate	85	45	66.4	1.57	
Anstralia	87	46	68.7	0.37	
Banaguises	87	50	68.9	1.31	
Batabano	88	52	68.3	1.88	
Camajuani	84	49	66.9	2.03	
Cardenas	86	54	69.2	1.35	
Cienfuegos	.....	.....	.....	0.74	
Gibara	87	59	72.1	6.89	
Guanajay	81	55	70.8	3.14	
Holguin	86	60	72.1	2.84	
Manzanillo	83	63	74.2	0.85	
Matanzas	84	50	66.9	1.80	
Moron Trocha	87	51	71.6	4.42	
Pinar del Rio	87	51	70.0	5.49	
Sagua la Grande	86	45	69.0	1.39	
Santa Clara	89	50	68.8	0.09	
Soledad	84	46	69.1	0.99	
Union de Reyes	83	51	70.6	1.16	
Puerto Rico.					
Caguas	89	59	72.4	2.05	

EXPLANATION OF SIGNS.

* Extremes of temperature from observed readings of dry thermometer.

A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:

[1] Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. + 4.
[2] Mean of 8 a. m. + 8 p. m. + 2.
[3] Mean of 7 a. m. + 7 p. m. + 2.
[4] Mean of 6 a. m. + 6 p. m. + 2.
[5] Mean of 7 a. m. + 2 p. m. + 2.
[6] Mean of readings at various hours reduced to true daily mean by special tables.
[7] Mean from hourly readings of thermograph.
[9] Mean of sunrise and noon.
[10] Mean of sunrise, noon, sunset, and midnight.

The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers.

An italic letter following the name of a station, as "Livingston *a*," "Livingston *b*," indicates that two or more observers, as the case may be, are reporting from the same station. A small roman letter following the name of a station, or in figure columns, indicates the number of days missing from the record; for instance, "s" denotes 14 days missing.

No note is made of breaks in the continuity of temperature records when the same do not exceed two days. All known breaks, of whatever duration, in the precipitation record receive appropriate notice.

CORRECTION.

December, 1899, Iowa, Pacific Junction, make precipitation read 1.40 instead of 1.73.

December, 1899, Oregon, Riddles, make precipitation read 4.90 instead of 4.85.

January, 1900, California, Yuba City, make mean temperature read 51.0 instead of 56.0.

January, 1900, Puerto Rico, Caguas, strike out all values.

NOTE.—The following changes have been made in the names of stations: California, Elmwood changed to Elmdale; California, West Palmdale, changed to Palmdale; Kansas, Centropolis changed to Coburn.

TABLE III.—*Mean temperature for each hour of seventy-fifth meridian time, February*, 1900.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midn't.	Mean.
Bismarck, N. Dak....	0.9	0.2	—0.3	—0.8	—1.4	—2.2	—2.8	—2.7	—3.1	—2.1	0.6	3.4	5.9	8.1	9.5	11.3	12.1	11.9	10.8	7.9	6.1	4.6	3.4	2.6	3.5
Boston, Mass	26.5	25.8	25.5	25.3	25.1	25.1	25.4	25.8	27.3	28.8	30.1	31.8	32.6	33.4	33.7	33.6	33.2	32.5	31.4	30.6	30.1	29.4	28.3	27.9	29.1
Buffalo, N. Y.....	22.1	21.6	21.5	21.5	21.4	21.1	21.2	21.6	22.0	22.6	23.5	24.8	25.8	26.0	26.3	26.4	26.2	25.4	24.7	23.9	23.6	23.4	22.9	22.7	23.4
Cedar City, Utah....	34.3	33.9	33.2	32.4	31.4	30.8	29.8	29.4	28.6	29.5	32.8	36.5	38.8	41.3	43.2	44.5	45.2	45.8	45.2	43.4	39.1	37.8	37.3	35.8	36.7
Chicago, Ill.....	18.1	17.7	17.2	16.9	17.1	17.1	17.1	17.4	17.4	18.1	19.1	20.3	21.3	22.3	23.2	23.9	24.0	23.4	22.6	22.1	21.1	20.6	20.2	19.7	19.9
Cincinnati, Ohio	28.5	28.1	27.9	28.0	27.6	26.7	26.1	26.4	26.0	26.7	28.4	29.9	31.3	32.1	33.6	34.6	35.0	34.8	34.2	33.3	32.0	31.5	30.9	30.3	30.2
Cleveland, Ohio	22.2	22.2	21.9	21.9	21.6	21.6	21.7	22.0	22.6	23.0	23.9	24.6	25.4	26.0	26.8	26.8	26.9	26.9	26.5	26.2	25.9	24.8	24.0	23.8	24.1
Detroit, Mich.....	20.1	19.9	19.6	19.2	19.3	19.0	18.7	18.6	18.6	19.7	21.0	22.4	23.2	23.9	24.6	24.9	24.9	24.1	23.0	22.6	22.2	21.6	21.1	20.9	21.4
Dodge, Kans.....	25.5	24.6	23.9	23.4	22.2	21.7	21.6	21.8	21.6	23.4	27.6	31.4	34.6	36.5	38.4	39.8	40.7	39.9	37.5	33.5	30.1	28.6	27.6	26.5	29.2
Eastport, Me.....	21.7	21.6	21.1	20.6	20.1	20.0	19.6	19.6	20.6	21.8	23.0	23.9	24.6	25.1	25.4	25.0	24.4	23.8	23.5	23.4	22.8	22.5	22.2	22.0	22.4
Galveston, Tex.....	51.7	51.6	51.3	51.1	50.8	50.4	49.9	49.8	50.0	50.6	51.8	53.2	54.1	54.8	55.0	55.5	55.2	55.2	54.6	54.2	53.6	53.4	52.7	52.2	52.6
Havre, Mont.....	9.1	8.6	7.3	7.1	6.8	6.8	7.4	7.5	7.6	7.8	8.6	10.1	11.6	13.8	16.1	16.4	16.9	16.7	16.1	14.9	12.7	11.8	10.7	9.9	10.9
Independence, Cal..	46.7	45.8	44.8	43.9	42.7	41.9	40.4	40.9	38.9	38.4	40.3	44.4	48.0	52.0	55.4	57.3	58.9	59.0	58.7	57.3	52.2	50.8	49.5	48.2	48.2
Kalispell, Mont	23.2	22.9	21.8	21.2	20.4	20.1	19.5	19.2	18.5	18.6	19.0	20.4	22.8	25.0	27.0	27.8	28.9	29.2	28.8	27.3	26.0	25.2	24.8	24.1	23.4
Kansas City, Mo.....	23.5	22.8	22.2	21.9	21.3	20.8	20.5	20.1	20.1	21.4	23.4	25.2	26.8	28.1	28.5	29.2	29.8	29.2	28.5	27.5	26.5	25.5	24.8	24.4	24.7
Key West, Fla.....	66.9	66.8	66.6	66.3	66.2	66.1	66.3	66.9	68.3	68.9	69.7	70.6	71.4	71.8	71.5	70.8	70.4	69.3	68.6	68.5	68.0	67.5	67.0	67.2	68.4
Marquette, Mich	9.7	9.6	9.4	9.3	8.9	8.4	7.9	7.8	8.4	9.9	11.5	13.2	14.2	15.0	15.8	15.6	15.3	14.7	13.6	12.9	12.0	11.6	11.1	10.6	11.5
Memphis, Tenn.....	38.1	37.4	36.9	36.5	36.2	35.9	35.4	35.0	35.8	37.2	39.0	40.1	41.9	43.0	44.7	45.4	44.8	43.8	43.0	42.5	41.5	40.9	39.8	39.3	39.7
Mt. Tamalpais, Cal..	47.9	47.7	47.7	47.5	47.1	46.8	46.4	46.7	46.1	45.9	46.4	47.0	47.8	48.7	49.9	51.1	51.1	50.7	50.8	49.4	49.0	48.4	48.4	48.4	48.2
New Orleans, La.....	51.9	51.5	51.1	50.9	50.7	50.0	49.7	49.5	50.4	51.2	53.4	54.9	56.2	57.1	57.6	58.6	58.4	57.6	56.1	54.7	53.5	53.0	52.7	52.1	53.5
New York, N. Y.....	29.5	28.7	28.3	28.0	27.8	27.6	27.5	27.7	28.3	29.7	31.2	32.9	33.6	34.5	35.2	35.3	34.9	34.1	33.4	32.9	32.1	31.8	31.8	31.3	31.2
Philadelphia, Pa.....	29.4	29.3	29.1	28.8	28.2	28.0	28.2	29.0	30.5	32.0	33.3	35.2	36.6	37.6	38.2	38.1	37.4	36.1	35.1	34.8	33.4	32.7	31.5	31.2	32.7
Pittsburg, Pa.....	26.2	26.1	25.8	25.4	25.6	25.6	26.0	26.4	26.8	28.1	29.3	30.6	32.3	33.0	33.0	33.4	33.4	32.8	31.6	30.2	29.4	28.9	28.2	28.0	29.0
Portland, Oreg.....	41.4	41.1	40.5	39.4	39.1	38.9	38.9	39.5	38.9	38.2	38.3	38.9	40.0	41.1	42.9	44.0	44.8	45.2	45.4	45.1	44.5	43.8	42.9	42.2	41.5
St. Louis, Mo.....	28.5	28.0	27.6	26.9	26.3	26.0	25.2	24.9	24.8	25.5	27.4	29.2	30.6	31.8	32.9	33.4	33.4	32.9	32.0	31.5	30.8	30.4	30.0	29.4	29.1
St. Paul, Minn.....	7.3	6.7	6.1	5.7	5.1	4.4	4.0	4.0	3.4	3.5	5.2	7.1	9.1	11.1	12.8	14.3	15.0	15.0	13.8	12.5	11.4	10.4	9.8	8.9	8.6
Salt Lake City, Utah.	32.1	31.4	30.4	30.5	30.1	30.0	30.2	30.6	29.6	29.1	31.0	33.5	35.7	37.1	38.1	39.2	39.8	39.9	38.9	37.0	35.8	34.6	33.6	33.1	33.8
San Diego, Cal.....	55.0	54.4	53.7	53.3	52.8	52.5	52.1	52.1	52.2	52.3	54.0	57.6	60.0	62.1	63.4	63.3	63.6	63.2	62.4	61.3	59.8	58.6	57.0	55.9	57.2
San Francisco, Cal...	52.0	51.3	50.9	50.7	50.0	49.6	49.5	49.9	49.0	48.6	48.7	49.9	51.4	53.2	55.0	56.9	58.2	58.6	57.8	56.9	55.8	54.5	54.3	53.1	52.7
Santa Fe, N. Mex ...	29.6	29.1	28.1	27.9	27.5	26.8	25.6	26.1	25.7	28.8	31.7	34.3	36.5	38.4	40.1	41.1	42.0	42.2	41.2	38.7	35.4	33.6	31.7	30.8	33.0
Savannah, Ga.....	46.8	46.2	45.7	45.5	45.1	44.9	44.7	45.0	46.4	48.9	51.1	53.0	54.4	55.8	56.6	56.9	55.9	53.9	52.2	50.9	50.1	49.3	48.7	48.3	49.8
Washington, D. C....	30.0	29.4	28.8	28.6	28.0	27.7	27.4	28.2	29.4	31.2	33.5	35.8	37.6	39.3	40.0	40.7	40.2	38.5	36.6	35.1	33.9	33.1	32.8	32.1	33.2
West Indies.																									
Basseterre, St. Kitts.	74.0	74.0	73.8	73.7	74.0	74.4	76.0	77.1	78.1	79.2	79.9	79.8	79.8	79.2	78.5	77.6	75.8	74.9	75.1	75.4	75.2	75.1	74.9	74.4	76.2
Bridgetown, Bar.....	74.0	73.8	73.7	73.5	73.2	74.2	77.6	79.6	80.8	81.7	82.2	83.0	82.7	82.1	81.0	80.1	78.3	76.9	76.1	75.7	75.4	75.1	74.6	74.2	77.5
Cienfuegos, Cuba ...	66.2	65.2	64.0	63.4	63.1	62.9	63.5	65.7	70.0	73.4	75.5	77.5	78.3	78.2	77.2	76.8	75.6	74.1	72.4	71.5	70.3	69.4	68.2	67.2	70.4
Havana, Cuba.....	67.3	66.9	66.5	66.4	66.1	65.8	65.9	66.4	68.6	71.3	73.3	74.4	74.9	75.1	75.2	74.9	73.9	72.9	71.7	71.0	70.2	69.8	69.0	68.1	70.2
Kingston, Jamaica..	69.9	69.8	69.2	69.1	68.6	68.6	68.5	71.6	76.8	79.8	81.4	82.7	83.3	83.0	82.0	81.8	80.5	78.6	76.4	74.5	73.0	72.0	71.2	70.1	75.1
Port of Spain, Trin..	72.3	71.7	71.6	71.5	71.3	72.3	75.5	79.0	80.9	82.4	84.5	85.3	85.0	85.0	84.1	82.2	80.2	77.9	77.0	76.6	75.2	74.5	73.8	73.1	77.5
P. Principe, Cuba	65.5	64.6	64.3	63.8	63.8	63.7	63.5	66.4	70.8	73.6	75.4	77.6	78.2	79.0	78.6	77.4	76.0	74.0	71.5	69.6	68.4	67.4	67.0	66.4	70.3
Roseau, Dominica ..	73.6	73.4	72.7	73.0	72.9	73.4	75.1	77.6	79.2	80.9	81.9	82.5	82.7	82.2	81.5	80.3	78.5	76.6	75.9	75.9	75.4	75.1	74.5	73.8	77.0
San Juan, P. R.....	72.4	72.2	72.1	71.8	71.6	71.5	72 9	75.2	78.2	79.2	79.9	79.8	79.9	80.0	79.3	78.9	77.3	76.0	75.6	75.2	74.4	74.1	73.6	72.8	75.6
Santiago de Cuba...	70.0	69.4	69.0	68.6	68.2	68.3	69.2	71.3	76.9	79.6	82.3	82.9	83.5	83.5	82.7	81.5	79.6	77.2	75.7	74.5	73.5	72.7	71.8	71.0	75.1
Willemstad, Curaçao	76.5	76.2	76.0	75.9	75.9	75.7	77.4	79.0	80.0	81.2	82.5	82.5	82.3	82.5	81.8	81.2	79.5	78.1	77.9	77.6	77.3	77.2	76.9	76.9	78.7

TABLE IV.—*Mean pressure for each hour of seventy-fifth meridian time, February*, 1900.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midn't.	Mean.
Bismarck, N. Dak....	28.272	.275	.273	.274	.271	.272	.272	.275	.276	.279	.278	.279	.272	.259	.241	.232	.233	.235	.240	.248	.258	.259	.262	.263	.263
Boston, Mass.....	29.819	.816	.810	.806	.803	.805	.815	.826	.830	.829	.824	.814	.799	.798	.795	.806	.818	.828	.840	.846	.857	.858	.855	.854	.828
Buffalo, N. Y.....	29.103	.100	.102	.098	.099	.097	.099	.103	.110	.113	.113	.106	.096	.085	.090	.100	.105	.118	.128	.129	.132	.131	.126	.120	.108
Cedar City, Utah....	24.241	.241	.241	.240	.239	.236	.234	.234	.240	.250	.264	.274	.275	.268	.250	.227	.217	.212	.211	.213	.220	.226	.233	.238	.239
Chicago, Ill.....	29.098	.094	.092	.088	.089	.091	.096	.102	.110	.115	.124	.132	.118	.095	.086	.088	.089	.095	.102	.108	.108	.106	.104	.099	.101
Cincinnati, Ohio	29.332	.330	.330	.329	.333	.336	.339	.351	.362	.368	.371	.369	.352	.335	.323	.321	.320	.324	.332	.333	.335	.335	.328	.324	.338
Cleveland, Ohio	29.133	.129	.126	.126	.127	.127	.131	.138	.147	.150	.155	.152	.141	.132	.135	.140	.145	.152	.157	.159	.152	.147	.144	.137	.141
Detroit, Mich.....	29.166	.160	.156	.153	.150	.152	.157	.164	.174	.177	.180	.182	.175	.166	.160	.167	.170	.178	.183	.188	.185	.182	.180	.172	.170
Dodge, Kans	27.365	.361	.360	.359	.356	.355	.360	.364	.372	.381	.384	.384	.376	.357	.335	.319	.314	.318	.325	.327	.349	.353	.357	.359	.354
Eastport, Me	29.826	.825	.829	.829	.838	.841	.849	.860	.860	.860	.849	.838	.828	.821	.822	.825	.836	.848	.855	.862	.870	.871	.867	.868	.845
Galveston, Tex.....	29.992	.989	.985	.983	.985	.983	.991	.998	.013	.030	.040	.043	.021	.995	.971	.957	.952	.951	.953	.959	.973	.985	.990	.992	.989
Havre, Mont.....	27.355	.351	.349	.344	.342	.334	.330	.328	.324	.333	.342	.355	.362	.359	.347	.341	.338	.335	.340	.346	.349	.346	.348	.350	.344
Independence, Cal..	26.004	.009	.011	.004	.007	.010	.015	.018	.033	.040	.052	.075	.074	.064	.034	.008	.987	.976	.968	.967	.971	.979	.988	.996	.012
Kalispell, Mont	26.915	.913	.911	.909	.910	.906	.910	.916	.918	.926	.937	.944	.944	.941	.927	.916	.905	.902	.900	.902	.908	.907	.906	.909	.916
Kansas City, Mo.....	29.015	.016	.018	.019	.024	.028	.032	.036	.042	.051	.054	.054	.039	.015	.994	.990	.990	.989	.992	.004	.006	.007	.014	.014	.019
Key West, Fla.....	30.081	.074	.065	.061	.064	.073	.085	.094	.112	.123	.122	.108	.084	.061	.046	.038	.036	.040	.048	.059	.071	.078	.084	.082	.075
Marquette, Mich	29.137	.136	.137	.131	.130	.132	.131	.134	.138	.141	.142	.143	.141	.130	.119	.120	.125	.135	.141	.146	.147	.149	.153	.153	.137
Memphis, Tenn.....	29.615	.619	.616	.618	.616	.623	.630	.644	.658	.665	.671	.668	.646	.624	.604	.594	.596	.595	.598	.600	.604	.606	.607	.605	.628
Mt. Tamalpais, Cal.	27.646	.648	.649	.645	.644	.639	.638	.635	.641	.649	.662	.674	.680	.682	.673	.658	.641	.634	.630	.630	.624	.627	.633	.640	.647
New Orleans, La.....	29.997	.991	.985	.979	.981	.988	.999	.012	.030	.039	.040	.039	.020	.000	.988	.979	.973	.978	.985	.989	.999	.000	.002	.000	.000
New York, N. Y.....	29.630	.626	.623	.622	.628	.631	.645	.661	.667	.666	.660	.644	.628	.617	.619	.625	.639	.650	.659	.668	.670	.671	.662	.654	.644
Philadelphia, Pa.....	29.890	.890	.887	.890	.894	.898	.909	.922	.930	.930	.928	.907	.888	.880	.876	.882	.893	.901	.907	.908	.910	.910	.907	.904	.902
Pittsburg, Pa.....	29.059	.054	.053	.052	.059	.065	.073	.084	.089	.084	.082	.070	.056	.052	.052	.055	.059	.066	.073	.076	.078	.078	.072	.065	.067
Portland, Oreg.....	29.975	.980	.982	.982	.984	.987	.986	.990	.989	.994	.000	.005	.009	.006	.999	.986	.974	.963	.962	.957	.958	.963	.969	.972	.981
St. Louis, Mo.....	29.407	.404	.400	.398	.395	.401	.412	.425	.438	.452	.453	.454	.441	.419	.396	.391	.389	.392	.395	.402	.398	.399	.400	.401	.411
St. Paul, Minn.....	29.136	.136	.135	.139	.139	.140	.142	.138	.144	.150	.156	.157	.155	.140	.123	.117	.111	.119	.122	.130	.134	.136	.141	.142	.131
Salt Lake City, Utah.	25.648	.648	.645	.643	.640	.631	.629	.638	.644	.656	.664	.670	.674	.669	.632	.640	.632	.632	.632	.636	.644	.646	.646	.649	.646
San Diego, Cal.....	29.918	.920	.917	.913	.910	.907	.908	.905	.914	.921	.930	.937	.940	.937	.918	.900	.884	.876	.875	.878	.888	.897	.903	.910	.908
San Francisco, Cal...	29.998	.001	.001	.999	.000	.995	.991	.992	.998	.006	.020	.029	.037	.035	.020	.002	.985	.977	.972	.968	.972	.978	.981	.988	.998
Santa Fe, N. Mex ...	23.152	.150	.147	.145	.141	.140	.143	.142	.153	.162	.173	.177	.172	.156	.134	.121	.113	.114	.120	.128	.138	.146	.153	.154	.145
Savannah, Ga.....	30.017	.017	.010	.010	.012	.022	.028	.039	.046	.049	.044	.032	.005	.982	.971	.971	.973	.978	.986	.992	.996	.004	.006	.004	.008
Washington, D. C....	29.915	.914	.912	.913	.921	.924	.939	.950	.061	.960	.952	.939	.910	.895	.884	.885	.893	.900	.910	.913	.915	.919	.920	.917	.919
West Indies.																									
Basseterre, St. Kitts.	29.989	.978	.971	.973	.985	.004	.025	.040	.050	.043	.027	.004	.985	.973	.971	.974	.984	.992	.004	.014	.019	.018	.012	.002	.001
Bridgetown, Bar.....	29.942	.935	.936	.940	.954	.967	.982	.997	.002	.992	.973	.951	.932	.921	.919	.935	.933	.944	.955	.968	.982	.999	.005	.008	.008	.985
Cienfuegos, Cuba...	29.992	.978	.969	.968	.970	.982	.997	.012	.025	.032	.028	.011	.983	.958	.943	.939	.944	.955	.968	.976	.990	.002	.013	.021	.023	.017	.007
Havana, Cuba.....	30.011	.004	.993	.989	.992	.995	.013	.032	.041	.052	.051	.038	.014	.991	.972	.965	.968	.976	.990	.002	.013	.021	.023	.017	.007	.701	.682
Kingston, Jamaica..	29.688	.677	.666	.663	.666	.676	.698	.714	.729	.735	.727	.705	.675	.652	.635	.632	.635	.647	.660	.680	.695	.704	.704	.701	.682
Port of Spain, Trin..	29.883	.876	.871	.878	.890	.909	.929	.942	.948	.936	.914	.889	.864	.848	.845	.851	.859	.869	.884	.899	.907	.909	.905	.896	.892
P. Principe, Cuba	29.669	.656	.647	.648	.658	.670	.682	.699	.710	.716	.705	.684	.659	.641	.631	.631	.639	.648	.660	.674	.683	.688	.686	.679	.669
Roseau, Dominica ..	29.960	.949	.949	.950	.962	.976	.993	.012	.017	.011	.992	.969	.953	.940	.938	.941	.948	.956	.965	.976	.982	.984	.982	.974	.970
San Juan, P. R.....	29.949	.936	.932	.934	.945	.961	.976	.990	.003	.000	.985	.964	.945	.928	.922	.928	.934	.945	.957	.968	.976	.978	.971	.961	.958
Santiago de Cuba...	29.914	.905	.897	.899	.911	.920	.935	.945	.961	.963	.947	.922	.894	.877	.866	.867	.877	.886	.900	.915	.934	.937	.936	.929	.914
Santo Domingo, S. D.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Willemstad, Curaçao	29.845	.836	.828	.831	.846	.863	.887	.900	.909	.905	.881	.859	.828	.806	.795	.797	.804	.814	.831	.849	.864	.869	.869	.863	.842

TABLE V.—*Average wind movement for each hour of seventy-fifth meridian time, February, 1900.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex.	10.8	10.8	11.4	11.2	10.8	10.8	10.8	10.2	9.9	11.1	14.2	15.1	15.8	16.0	16.2	16.4	16.5	15.1	14.1	11.8	9.7	10.4	10.7	10.7	12.5
Albany, N. Y.	6.5	6.8	6.7	7.4	7.2	7.5	7.6	8.4	9.0	10.4	11.7	12.6	13.4	13.1	12.2	11.7	10.4	9.6	8.4	8.9	8.0	7.6	7.6	7.3	9.2
Alpena, Mich.	9.8	9.0	9.1	8.5	8.7	8.8	9.8	10.2	11.5	12.9	14.0	14.4	14.7	15.0	14.6	14.0	14.1	13.0	12.1	11.4	11.5	11.1	10.1	10.2	11.6
Amarillo, Tex.	18.1	18.1	16.9	16.9	17.1	16.6	16.7	16.0	17.1	16.7	19.8	22.7	23.0	22.0	21.5	21.7	20.9	20.2	17.1	14.8	14.8	15.1	15.9	17.1	18.2
Atlanta, Ga.	14.8	14.2	13.8	13.9	13.3	13.1	13.9	14.3	14.7	14.5	15.2	14.8	15.0	14.7	14.9	15.2	14.8	13.9	13.9	14.6	13.5	13.6	13.6	14.3	14.3
Atlantic City, N. J.	14.6	13.9	14.5	14.4	14.5	14.2	14.6	14.2	15.9	17.2	17.9	17.6	17.6	16.9	16.6	16.4	16.5	14.4	13.1	13.5	13.6	13.3	13.0	12.7	15.0
Augusta, Ga.	7.5	7.6	7.6	7.1	6.5	6.1	6.1	6.5	7.8	8.6	8.8	9.0	9.3	10.1	10.9	11.5	10.4	9.8	8.0	8.1	8.4	8.1	8.0	8.2	8.4
Baker City, Oreg.	5.5	5.8	5.8	5.4	5.8	6.5	5.9	7.3	7.6	7.4	7.8	6.4	6.1	5.3	5.4	6.2	6.6	7.1	6.6	5.2	3.9	3.8	4.2	5.1	5.9
Baltimore, Md.	5.8	6.0	5.5	5.8	5.6	5.7	5.5	6.1	6.6	6.9	7.8	7.8	8.1	8.6	8.8	8.4	8.2	8.1	7.0	6.4	6.0	5.8	5.8	5.9	6.8
Bismarck, N. Dak.	8.9	8.3	8.4	8.1	8.8	7.9	8.4	8.1	7.4	7.7	9.5	11.4	12.7	12.4	12.8	12.9	13.0	12.2	11.8	10.1	9.7	9.1	9.1	9.5	9.9
Block Island, R. I.	22.7	22.7	24.1	23.6	22.4	20.8	20.9	21.3	22.6	23.2	23.7	22.8	22.0	23.7	23.6	23.1	22.9	22.5	23.0	22.5	22.5	22.5	23.0	21.4	22.7
Boise, Idaho	4.1	3.9	3.4	3.3	3.5	3.1	3.1	3.3	3.4	3.2	3.3	4.2	5.1	5.5	6.3	6.6	6.9	6.9	6.0	5.0	5.0	4.1	3.9	4.1	4.4
Boston, Mass.	13.6	14.3	14.4	14.0	13.9	12.7	12.5	13.5	14.3	15.1	16.3	16.5	17.5	17.3	17.1	16.9	16.1	14.0	13.9	13.2	13.2	12.8	13.0	12.9	14.5
Buffalo, N. Y.	16.8	16.3	15.8	16.0	15.9	15.4	16.1	16.4	17.2	16.6	16.9	17.1	19.2	19.4	20.0	19.5	19.4	18.2	18.2	17.4	16.7	16.3	16.5	16.5	17.2
Cairo, Ill.	11.2	11.6	12.0	12.0	11.7	11.6	11.7	11.2	11.4	11.2	11.2	11.2	11.1	11.0	11.7	12.3	12.0	12.1	11.2	10.8	10.9	10.5	11.1	11.4	11.4
Cape Henry, Va.	16.5	17.0	16.2	16.3	16.1	15.7	15.2	15.1	15.2	16.1	16 2	16.5	17.5	17.1	15.9	15.7	14.5	14.2	13.9	13.6	14.7	15.8	16.5	15.8	15.7
Carson City, Nev.	7.6	8.0	8.1	7.2	6.9	6.1	6.2	6.2	6.1	5.6	4.7	4.4	4.8	7.1	8.5	8.5	8.0	8.7	9.4	9.3	9.8	8.8	7.8	7.8	7.3
Cedar City, Utah.	5.7	6.2	6.1	6.5	6.2	6.0	5.5	5.6	5.3	5.0	5.5	4.7	6.8	7.1	7.6	8.2	8.9	8.4	8.6	7.7	6.6	6.8	6.8	6.5	6.6
Charleston, S. C.	11.6	11.3	11.1	11.1	11.5	11.3	11.4	11.2	11.3	12.6	13.1	13.1	14.2	14.2	14.5	14.4	14.2	13.2	13.2	11.0	10 7	11.4	11.8	12.0	12.3
Charlotte, N. C.	7.8	7.8	8.3	7.4	7.7	7.5	7.0	7.4	8.4	9.2	9.5	10.4	9.8	9.9	11.0	11.1	10.3	9.5	8.0	8.5	8.4	8.6	8.6	8.0	8.8
Chattanooga, Tenn.	8.9	7.9	8.5	8.1	8.5	8.8	8.9	9.2	9.1	10.6	11.2	11.9	12.6	12.1	12.3	11.9	10.3	9.4	8.8	9.4	8.9	9.3	9.7		
Cheyenne, Wyo.	11.8	12.1	12.0	10.6	11.2	10.8	12.2	13.1	15.2	16.3	20.2	17.1	19.5	21.3	19.8	18.9	17.9	17.4	16.5	13.2	11.6	11.5	10.9	11.6	14.4
Chicago, Ill.	18.2	18.1	17.9	18.1	19.0	19.3	19.5	19.4	19.2	19.2	19.2	10.7	10.8	20.5	20.0	19.7	18.8	18.5	18.4	18.8	18.8	18.9	18.0	18.2	19.1
Cincinnati, Ohio.	9.0	8.2	7.8	8.3	9.0	9.1	9.1	9.5	10.6	10.6	10.7	10.7	10.8	10.9	10.9	10.4	10.2	10.1	10.3	9.6	9.9	9.2	8.8	8.4	9.7
Cleveland, Ohio.	17.9	17.9	16.9	16.7	15.8	15.4	15.7	16.1	16.9	17.9	18.5	18.8	18.6	18.7	17.6	17.5	17.0	16.2	16.8	17.4	17.9	17.8	18.2	17.5	17.3
Columbia, Mo.	9.3	9.3	10.5	10.6	10.3	10.0	9.5	9.5	10.1	10.6	10.5	10.5	10.5	11.0	11.2	11.6	11.6	12.0	12.1	10.3	10.0	10.7	10.8	10.7	10.5
Columbus, Ohio	8.6	8.6	8.5	8.2	8.4	8.4	8.6	8.7	9.8	11.1	11.2	11.7	12.0	11.5	11.2	11.2	10.9	10.6	10.0	9.3	9.2	9.5	9.2	8.6	9.8
Concordia, Kans.	7.0	7.7	7.9	7.4	7.4	6.6	6.7	6.2	6.8	7.9	9.1	9.6	10.3	10.9	10.9	10.6	10.9	10.4	9.9	7.7	6.0	6.8	7.6	6.9	8.1
Corpus Christi, Tex.	12.0	12.5	11.9	12.3	11.9	11.1	11.8	11.4	10.9	10.4	10.3	9.9	13.8	14.4	14.0	13.7	13.9	14.0	14.4	13.8	12.2	11.1	11.0	10.9	11.4
Davenport, Iowa.	8.2	7.6	7.9	7.5	7.6	8.0	8.2	8.3	8.9	9.4	9.6	9.9	10.5	11.0	10.8	10.8	11.0	10.8	10.1	9.0	8.1	8.0	8.0	7.8	8.0	8.9
Denver, Colo.	8.4	8.3	8.5	8.2	8.2	7.6	7.9	7.5	7.7	7.9	8.9	10.0	10.0	10.0	10.8	12.8	12.4	12.3	13.1	12.0	11.0	9.1	8.6	8.8	9.5
Des Moines, Iowa.	8.8	8.9	8.1	7.5	8.1	7.8	8.3	8.1	8.2	9.0	10.0	10.1	10.6	10.6	10.8	10.8	11.0	10.7	10.5	9.2	9.2	9.4	9.2	8.8	9.3
Detroit, Mich.	10.6	10.6	10.2	10.4	10.0	10.1	10.4	10.1	11.6	12.0	11.9	12.9	13.5	13.8	13.8	14.0	13.9	13.1	11.8	9.8	9.4	9.1	9.0	8.9	9.3
Dodge, Kans.	9.8	9.3	10.6	10.5	10.5	10.5	10.1	10.4	9.7	9.6	11.1	14.4	15.3	15.3	15.7	15.7	16.2	16.0	14.6	12.5	10.6	10.6	10.8	10.1	11.5
Dubuque, Iowa.	9.4	9.3	9.0	8.3	8.4	8.0	8.2	8.0	8.9	9.3	9.9	13.1	9.9	10.2	10.8	11.2	10.3	10.3	9.9	9.1	9.8	9.4	9.8	8.5	8.8	9.2
Duluth, Minn.	11.8	12.0	10.9	10.9	10.6	9.7	9.6	9.8	9.8	9.5	9.5	8.5	9.0	10.0	10.6	12.8	12.4	12.3	12.5	8.5	9.2	9.9	8.6	8.8	10.3
Eastport, Me.	14.4	15.1	16.2	15.9	16.1	15.6	15.9	15.5	15.9	16.8	16.6	16.6	15.7	14.5	14.8	15.6	15.2	15.8	15.9	15.4	15.2	15.8	15.0	15.2	14.4	15.6
Elkins, W. Va.	5.7	5.2	5.8	5.2	5.2	5.5	5.5	6.3	6.2	6.8	7.2	7.2	9.8	10.5	9.9	9.5	8.5	6.9	6.2	5.8	6.4	6.1	6.1	5.6	7.0
El Paso, Tex.	11.9	11.6	11.5	11.4	11.5	10.5	10.8	9.2	9.0	9.2	9.1	9.4	10.6	10.9	13.2	13.9	14.4	14.4	13.5	12.9	13.0	13.2	11.9	10.5	10.7	12.0
Erie, Pa.	15.5	15.1	15.2	14.8	14.2	13.5	13.1	13.5	14.8	14.7	14.8	14.7	15.1	15.3	14.9	15.3	14.6	14.5	13.5	16.4	16.9	16.6	13.8	14.1	14.5	14.3
Escanaba, Mich.	8.7	8.9	9.2	9.1	8.8	8.9	9.9	9.2	9.3	9.4	10.7	11.3	12.0	12.0	11.8	12.3	12.1	11.5	10.9	9.8	11.4	9.9	9.1	9.1	9.1	10.0
Eureka, Cal.	4.6	4.1	3.5	3.3	3.2	3.6	3.6	3.1	2.6	2.9	2.5	2.7	4.0	4.3	4.8	5.7	5.1	9.6	10.7	11.4	7.9	9.9	7.0	9.1	5.9	5.7
Evansville, Ind.	8.0	8.2	8.6	8.3	8.8	8.9	9.1	8.6	8.3	8.4	8.7	9.2	9.3	9.6	9.4	9.5	10.7	10.2	9.8	8.0	7.9	8.2	8.7	8.2	8.9	8.7
Fort Smith, Ark.	9.5	9.5	8.9	9.0	9.2	9.3	9.2	9.9	9.2	8.3	8.4	9.9	9.8	9.8	9.7	9.5	9.2	10.2	9.6	17.3	15.0	14.6	14.6	13.8	13.7	15.1
Fort Worth, Tex.	13.8	13.8	13.6	13.7	13.4	13.6	13.0	12.6	11.9	13.3	15.5	15.8	16.7	18.4	18.8	18.2	18.4	18.1	14.9						
Fresno, Cal.	3.8	4.2	4.2	4.5	4.5	4.2	4.0	3.7	3.9	3 8	3.3	4.1	4.8	4.8	4.9	5.1	4.9	4.9	4.3	3.2	3.4	3.9	4.1	4.2	
Galveston, Tex.	12.2	12.5	12.7	12.4	11.7	12.2	12.1	12.4	12.7	12.9	12.9	12.9	12.9	13.2	12.6	12.6	13.0	13.6	12.4	11.7	11.9	12.5	12.1	10.4	10.4	12.5
Grand Haven, Mich.	11.0	11.5	11.4	12.2	12.4	12.4	12.4	12.4	12.5	13.0	13.5	13.0	13.5	13.2	12.9	12.4	12.8	12.2	10.8	10.3	10.5	10.6	12.1	10.4	4.1	11.9
Grand Junction, Colo.	4.9	5.1	5.3	6.2	6.5	6.2	6.5	6.2	5.8	5.8	5.5	5 8	7.1	6.6	6.4	6.5	7.0	6.5	6.3	5.8	5.6	4.6	3.9	4.1	4.1	5.7
Green Bay, Wis.	8.9	9.5	9.3	9.7	9.2	9.2	9.0	9.8	9.8	9.8	10.3	11.0	10.1	10.7	10.5	10.3	10.4	10.1	9.5	8.8	7.9	8.6	8.6	9.1	8.9	9.5
Harrisburg, Pa.	9.8	10.1	10.0	10.4	9.9	10.0	10.3	10.5	11.2	10.8	10 7	10.8	11.3	11.8	11.8	12.2	11.5	10.6	10.3	9.9	9.1	9.1	9.1	10.6	
Hatteras, N. C.	17.6	19.2	19.2	18.6	17.8	17.2	16.9	18.1	18.0	17.6	17.3	16.6	16.6	16.2	17.0	17.7	18.0	18.3	18.8	18.6	18.8	18.6	18.4	18.2	18.0	
Havre, Mont.	9.1	8.8	8.2	8.1	7.9	7.7	8.3	8.2	7.6	9.8	11.2	10.3	10.8	10.2	10.8	12.0	11.6	10.7	11.1	10.7	10.9	11.0	11.2	10.7	10.1	9.8
Helena, Mont.	8.2	7.7	7.9	7.6	6.4	7.2	6.7	6.3	6.1	4.4	4.8	5.3	5.8	6.3	8.8	9.7	9.9	9.9	10.3	9.3	8.0	8.1	7.9	8.9	9.5	7.7
Huron, S. Dak.	10.4	10.5	10.8	11.2	11.0	10.3	9.9	11.2	10.5	11.1	12.7	13.4	13.8	14.3	14.0	14.6	14.8	14.7	12.6	11.5	11.2	11.3	11.1	11.2	12.0	
Independence, Cal.	8.6	9.8	9.1	10.1	10.2	9.8	8.5	8.2	8.1	7.4	6.9	8.1	9.9	10.5	9.9	10.6	11.8	12.0	12.7	11.5	10.0	9.4	8.0	8.0	9.5	
Indianapolis, Ind.	11.5	11.5	11.2	11.4	12.0	11.9	12.1	12.3	12.5	13.0	12.9	13.1	13.8	14.5	14.6	13.7	13.7	13.0	12.6	11.6	12.0	11.8	11.2	11.4	12.5	
Jacksonville, Fla.	6.7	6.9	7.1	7.2	7.1	7.5	7.5	7.1	8.6	10.4	11.3	11.1	11.4	11.6	12.1	13.9	12.4	10.9	10.2	8.5	8.4	8.1	7.5	7.2	6.8	8.9
Jupiter, Fla.	10.2	10.5	10.7	10.0	9.8	9.7	9.1	10.0	11.6	13.3	14.6	15.1	15.8	16.1	16.2	15.9	14.1	13.0	12.4	10.7	10.4	10.0	10.0	10.3	5.6	11.9
Kalispell, Mont.	5.4	5.1	5.4	5.1	5.1	4.4	5.0	4.6	4.9	5.3	5.2	4.7	5.3	6.3	7.0	6.9	7.0	6.4	6.5	6.6	6.0	6.0	6.0	5.5	5.6	
Kansas City, Mo.	9.6	9.9	9.8	9.3	9.0	9.0	8.9	8.9	9.0	9.6	10.2	9.9	10.9	10.9	10.9	11.4	11.4	11.6	10.8	10.5	9.6	9.0	9.6	9.9	9.5	9.9
Keokuk, Iowa.	8.0	8.2	8.5	8.6	9.0	8.8	8.8	9.0	8.8	9.4	10.2	10.6	10.5	10.8	11.4	11.7	11.0	10.4	9.7	9.4	8.9	8.6	8.6	8.2	9.5	
Key West, Fla.	11.8	11.3	12.0	12.2	11.6	11.1	11.8	11.8	11.8	12.8	14.1	13.5	13.8	13.0	12.8	13.2	13.0	12.0	12.3	11.8	11.9	11.4	11.9	11.7	12.3	
Kittyhawk, N. C.	15.8	15.8	17.4	17.8	17.5	16.9	16.9	16.5	18.9	18.9	18.9	16.5	17.0	16.2	16.7	17.6	17.4	17.6	16.5	15.9	15.5	14.9	15.4	15.8	15.9	16.5
Knoxville, Tenn.	8.2	7.7	7.8	8.6	9.5	8.9	8.8	8.1	8.6	9.4	10.3	10.0	11.4	12.5	12.4	11.9	11.9	11.3	10.7	10.9	9.8	9.5	8.8	8.4	8.1	9.7
La Crosse, Wis.	7.2	7.3	7.1	6.5	6.8	6.8	6.6	6.3	6.3	7.3	7.5	8.0	7.8	8.3	8.6	8.5	8.2	7.2	7.2	6.0	6.2	6.5	6.7	6.9	7.2	7.2
Lander, Wyo.	2.5	2.8	2.7	2.4	2.5	2.9	2.8	3.9	4.3	4.1	3.5	3.2	3.6	5.0	4.9	5.6	4.5	4.6	3.8	3.3	3.6	3.5	3.0	2.4	3.6	
Lexington, Ky.	13.8	13.6	13.4	13.3	13.6	14.1	14.4	14.5	14.9	14.9	18.9	15.5	14.1	14.4	14.0	13.8	13.6	13.1	12.3	11.6	11.8	12.6	13.2	13.2	13.7	
Little Rock, Ark.	10.2	9.9	9.7	9.1	8.5	8.6	9.2	8.7	8.9	10.3	16.0	11.0	11.9	11.6	12.4	14.1	14.0	13.8	13.1	10.9	10.0	10.0	10.1	11.0	11.2	10.4
Los Angeles, Cal.	1.8	2.3	2.0	2.2	2.5	2.6	2.9	3.0	3.6	3.7	3.3	3.4	4.4	4.3	4.5	4.8	6.2	7.9	7.6	6.9	5.1	3.2	2.2	1.8	3.8	
Louisville, Ky.	9.2	9.1	9.8	9.8	9.9	9.9	10.2	10.9	11.0	11.4	11.8	12.1	12.4	12.1	12.9	13.1	13.2	13.1	12.4	11.5	11.7	11.1	11.4	11.5	11.5	12.1
Lynchburg, Va.	4.2	4.4	4.4	4.0	3.5	3.2	3.9	4.0	4.5	5.4	6.0	9.5	9.2	9.9	10.6	10.5	10.9	11.0	11.1	12.0	10.6	9.4	9.4	8.7	9.2	9.0
Macon, Ga.	7.3	7.6	7.3	8.1	7.6	8.0	7.1	7.8	8.2	9.3	12.5	12.6	13.3	13.4	12.8	12.4	13.1	12.9	12.4	12.0	10.6	10.0	9.6	8.8	9.4	9.6
Marquette, Mich.	12.1	11.7	12.0	12.2	12.0	12.0	12.0	12.7	12.3	13.0	13.2	12.9	13.4	13.7	13.4	13.2	13.1	12.2	12.4	11.1	11.3	10.4	9.3	9.4	9.0	10.4
Memphis, Tenn.	14.4	15.3	14.8	14.3	14.4	14.0	13.6	13.5	13.0	13.2	12.9	12.8	12.9	13.0	13.2	13.2	13.1	12.9	12.4	12.7	11.3	10.4	9.3	9.4	17.8	18.5	16.1
Milwaukee, Wis.	11.5	11.9	11.9	12.5	12.4	11.7	12.8	12.6	12.8	12.8	12.8	8.9	9.8	10.2	11.3	11.6	11.7	10.8	11.2	12.0	12.9	11.3	10.2	9.3	16.1		
Mobile, Ala.	8.7	8.2	8.4	8.0	8.7	8.8	9.1	7.8	7.5	9.4	10.4	10.4	10.2	10.4	11.2	11.2	12.8	13.2	12.9	11.4	11.8	11.3	10.2	10.2			
Montgomery, Ala.	9.4	9.2	8.5	7.9	7.9	8.2	8.2	8.4	8.6	9.4	9.6	10.1	11.2	12.1	12.4	13.1	12.4	11.2	12.8	14.8	14.6	14.7	14.4	15.6	15.4	15.3	15.6
Moorhead, Minn.	8.1	8.6	9.1	9.8	9.6	9.8	9.9	9.9	9.9	10.7	11.1	11.2	11.9	14.1	13.6	13.2	13.8	13.0	13.0	10.0	9.3	9.4	8.8	9.0	9.0	9.6	9.8
Mount Tamalpais, Cal.	18.7	18.4	18.4	18.8	18.2	19.5	19.8	17.8	17.9	16.8	16.8	15.9	14.1	15.8	16.8	16.4	15.8	16.8	16.4	15.2	14.6	14.7	14.4	15.6	15.4	15.3	15.6
Nantucket, Mass.	15.4	15.1	15.2	15.1	15.0	15.2	15.9	15.2	15.5	16.1	16.1	17.0	17.0	16.8	16.4	16.8	15.8	14.8	14.6	14.7	14.4	15.6	15.4	15.3	15.6	9.8
Nashville, Tenn.	9.5	8.8	9.3	8.9	9.0	9.3	9.8	8.7	8.7	9.7	10.6	11.9	11.0	11.7	11.9	11.0	10.8	10.0	9.4	9.4	8.8	9.0	9.0	9.6	9.8	9.4	11.3
New Haven, Conn.	9.8	9.7	9.7	9.5	10.7	10.8	11.2	11.0	12.1	14.0	13.6	13.2	14.1	13.6	13.1	13.6	13.2	12.3	10.9	10.0	10.2	10.4	10.8	9.3	9.7	10.2	11.5
New Orleans, La.	10.2	10.7	11.0	11.4	11.1	10.8	10.6	10.6	11.2	11.1	12.3	12.6	13.7	14.1	13.9	13.2	13.0	13.0	12.2	10.6	11.0	11.1	10.7	10.2	11.6		
New York, N. Y.	20.5	20.0	20.3	21.0	21.0	21.4	22.8	22.3	23.1	23.5	24.2	22.8	22.6	23.2	22.4	22.6	23.2	20.4	20.3	20.6	21.0	19.8	19.5	20.1	19.6	21.6	

TABLE V.—*Average wind movement, etc.*—Continued.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Norfolk, Va.	12.6	11.7	10.8	11.4	11.6	11.4	11.7	11.0	11.6	13.1	13.8	14.9	15.6	15.1	14.9	14.2	14.0	12.6	12.7	12.1	12.0	12.0	12.4	12.4	12.7
Northfield, Vt.	8.5	7.4	7.8	8.0	8.9	8.7	8.4	8.0	8.5	9.2	10.5	11.8	12.2	11.1	10.6	11.1	11.0	10.3	10.6	10.8	9.9	9.4	9.1	8.9	9.6
North Platte, Nebr.	6.7	6.8	6.3	7.0	7.4	8.0	7.6	6.8	6.8	6.5	7.6	9.7	10.0	9.9	11.2	11.6	11.5	11.5	10.1	9.0	8.6	8.3	7.8	6.9	8.5
Oklahoma, Okla.	12.5	12.5	13.0	13.1	13.1	12.6	12.6	12.4	12.3	13.3	14.7	15.1	15.4	16.6	16.6	16.2	16.6	17.1	15.1	12.7	13.0	13.3	12.9	12.5	14.0
Omaha, Nebr.	10.7	10.6	10.4	10.0	10.2	9.9	9.6	9.7	9.6	10.0	10.8	12.0	12.9	12.0	13.2	13.2	13.3	12.7	11.4	10.6	10.7	10.9	10.6	10.8	11.1
Oswego, N. Y.	16.2	15.9	16.2	15.6	15.6	15.0	16.0	16.2	16.0	15.8	15.9	15.6	16.2	16.6	17.0	16.8	17.4	16.6	16.6	16.8	16.4	16.1	16.2	15.7	16.2
Palestine, Tex.	10.8	10.8	11.1	10.5	10.4	10.1	10.0	10.5	9.6	10.7	12.2	12.0	11.6	12.0	12.2	13.1	13.5	13.0	12.2	10.8	9.6	10.6	10.8	11.1	11.2
Parkersburg, W. Va.	6.6	6.4	6.2	6.5	6.7	6.9	6.8	7.1	7.2	8.0	9.2	11.2	11.7	10.6	10.5	10.3	9.9	8.5	7.9	6.8	6.8	6.5	6.0	5.5	7.9
Pensacola, Fla.	11.0	11.1	11.1	10.8	11.1	11.6	12.6	11.8	12.0	12.3	13.8	13.0	13 9	13.9	13.9	13.9	13.9	12.9	12.1	11.3	10.6	11.7	11.6	11.0	12.2
Phenix, Ariz.	4.3	4.3	4.3	4.6	4.1	4.0	4.2	4.0	4.2	4.6	4.6	5.4	5.7	5.8	5.2	5.8	6.3	5.8	5.7	4.7	3.2	3.6	3.8	3.9	4.7
Philadelphia, Pa.	10.2	10.8	10.8	10.9	10.6	11.0	10.8	10.4	11.0	11.9	12.4	12.4	12.7	13.0	12.4	12.5	11.8	11.1	10.9	10.5	10.4	10.3	10.6	10.8	11.2
Pierre, S. Dak.	10.1	10.0	9.9	8.9	8.8	8.5	9.5	9.7	8.9	10.0	12.0	12.1	13.0	13.7	14.4	14.5	14.9	13.1	11.7	10.4	10.3	10.4	11.1	10.5	11.1
Pittsburg, Pa.	7.6	7.5	7.5	7.4	7.7	7.8	7.6	7.5	7.8	8.6	9.0	10.1	10.4	10.4	10.7	10.1	9.9	9.3	8.0	7.9	7.4	7.6	8.0	8.2	8.5
Pocatello, Idaho.	12.4	11.7	10.7	9.7	10.7	11.1	11.6	12.3	12.1	12.2	12.1	12.8	12.8	13.3	12.8	11.5	11.4	11.3	11.2	11.4	10.4	11.6	11.6	11.9	11.7
Point Reyes Lt., Cal.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Port Crescent, Wash.	3.5	3.9	3.1	3.3	3.5	3.9	3.9	3.8	3.8	4.2	3.7	3.6	3.8	4.2	5.4	5.3	5.2	5.2	4.4	4.8	4.2	3.2	3.0	3.4	4.0
Port Huron, Mich.	10.8	11.1	11.4	11.2	11.1	11.6	11.8	12.4	12.7	13.6	15.2	15.4	16.4	16.6	16.6	16.2	15.8	14.9	13.4	12.5	12.1	12.2	11.7	11.6	13.3
Portland, Me.	7.9	8.3	8.8	9.5	9.5	9.8	10.0	10.3	10.2	10.4	11.2	11.9	12.6	12.6	12.8	12.4	11.1	9.8	9.2	8.6	8.5	7.8	8.0	7.7	10.0
Portland, Oreg.	9.4	8.9	9.4	9.5	9.4	10.0	10.2	10.1	9.3	8.8	8.9	9.0	9.9	10.8	10.4	10.2	10.6	10.2	9.8	9.8	9.1	9.3	10.0	9.8	9.7
Pueblo, Colo.	6.6	6.9	6.2	6.2	6.5	6.5	7.6	7.6	8.2	8.1	8.0	9.0	8.9	11.5	12.6	12.6	12.2	11.8	10.4	7.2	8.0	7.5	7.0	6.8	8.5
Raleigh, N. C.	6.9	6.9	7.4	7.0	6.6	6.0	5.8	6.1	7.4	8.1	9.4	9.1	9.9	10.3	10.2	9.9	9.5	8.5	7.2	7.5	7.5	7.8	7.1	7.2	7.9
Rapid City, S. Dak.	6.4	5.2	4.8	4.6	5.2	5.4	5.9	6.5	6.5	6.2	6.5	7.1	8.8	9.6	9.7	10.0	10.2	10.3	10.0	9.0	7.9	7.8	7.1	7.0	7.4
Red Bluff, Cal.	5.5	4.6	4.5	4.7	4.7	4.9	4.9	4.8	4.6	4.1	3.9	4.1	5.2	6.6	7.1	7.2	7.5	7.2	7.0	6.8	5.6	6.2	6.0	5.7	5.6
Richmond, Va.	6.6	6.5	6.2	6.0	5.7	5.9	6.2	6.0	7.6	8.4	9.4	9.9	11.0	10.2	10.1	10.0	9.5	8.9	7.3	7.5	7.4	7.7	7.6	6.8	7.9
Rochester, N. Y.	9.7	9.3	9.8	9.7	10.3	9.4	9.7	9.8	9.9	10.5	11.1	10.8	12.0	11.8	12.4	11.6	11.6	11.4	10.7	10.6	9.9	9.9	9.7	9.7	10.5
Roseburg, Oreg.	2.2	2.2	2.2	2.1	2.1	2.3	2.2	2.2	2.4	2.6	2.6	2.6	3.0	3.7	4.0	3.8	4.8	4.8	4.6	3.9	3.4	2.8	2.7	2.4	3.0
Sacramento, Cal.	8.4	8.3	8.2	8.2	8.0	7.8	7.9	7.3	7.0	6.9	7.4	7.5	8.7	8.0	8.8	9.3	9.5	8.4	8.7	8.6	8.0	8.0	8.3	8.0	8.1
St. Louis, Mo.	11.1	11.0	11.5	11.2	11.6	11.8	12.1	11.9	12.5	12.2	12.1	12.0	11.9	12.0	12.4	12.8	13.6	13.0	11.9	11.4	11.8	12.0	12.1	12.0	12.0
St. Paul, Minn.	8.8	9.0	8.0	7.8	7.8	7.6	7.4	7.5	8.0	8.1	9.1	9.8	10.4	10.9	11.4	11.2	11.0	10.1	9.5	8.8	9.0	8.2	8.4	8.9	9.0
Salt Lake City, Utah.	4.5	4.2	3.9	3.7	2.9	4.0	3.7	4.4	4.8	3.6	3.1	3.8	4.7	7.1	7.8	8.6	8.5	8.1	7.0	6.8	5.8	5.1	4.9	4.6	5.2
San Antonio, Tex.	9.9	9.9	8.8	8.5	7.6	8.1	7.9	8.2	7.9	8.8	10.1	11.4	11.7	12.2	12.3	12.7	12.8	13.3	13.3	11.9	11.1	11.0	10.6	10.0	10.4
San Diego, Cal.	3.7	4.0	4.0	4.2	4.7	4.0	4.1	4.7	5.3	5.1	4.4	4.4	5.5	6.6	8.4	10.1	10.6	10.8	10.4	8.6	6.5	4.1	3.4	3 9	5.9
Sandusky, Ohio.	8.4	8.3	9.0	9.0	9.1	8.2	8.3	8.5	9.8	10.4	11.0	10.9	11.1	11.6	11.7	11.6	11.0	10.1	9.9	9.5	9.2	9.6	9.1	8.8	9.7
Sandy Hook, N. J.	23.8	24.1	23.3	22.6	23.4	24.1	24.5	25.0	23.8	23.6	22.6	22.5	24.2	23.4	23.5	22.9	22.8	22.1	21.5	21.7	21.4	21.8	22.4	21.9	23.0
San Francisco, Cal.	7.4	6.6	6.2	5.5	5.1	4.8	4.5	4.0	4.2	4.6	5.1	5.9	6.9	6.9	6.3	7.6	9.6	10.5	11.4	11.5	11.5	10.9	8.7	7.5	7.2
San Luis Obispo, Cal.	3.9	3.5	3.3	3.5	4.3	4.3	3.7	3.8	3.7	4.6	4.2	4.9	6.5	6.8	7.5	8.1	8.9	9.2	9.2	7.9	6.3	5.5	4.9	4.9	5.6
Santa Fe, N. Mex.	4.7	4.1	4.6	4.5	4.8	4.7	5.1	6.0	6.5	7.2	8.6	10.8	11.7	11.8	12.5	11.5	11.0	11.0	10.9	8.3	6.0	4.7	4.8	4.9	7.5
Sault Ste. Marie, Mich.	9.0	9.0	9.0	8.8	8.3	8.4	7.7	8.0	9.0	9.2	9.8	10.2	10.8	11.8	13.0	13.1	12.7	12.3	10.6	10.0	9.1	9.4	8.8	8.8	9.9
Savannah, Ga.	8.2	8.1	7.9	7.9	8.4	7.9	7.8	8.6	8.9	10.1	11.5	11.8	11.9	12.3	12.5	11.5	11.6	10.4	9.1	9.6	9.6	9.6	9.4	8.8	9.7
Seattle, Wash.	6.1	6.4	6.0	5.9	5.9	6.1	5.9	6.1	5.9	6.0	6.8	6.5	7.0	6.6	6.8	7.2	6.9	6.9	6.6	6.2	5.9	5.8	6.0	5.7	6.3
Shreveport, La.	9.2	9.5	9.5	9.0	9.2	8.7	8.0	8.8	8.7	9.9	11.0	10.9	10.5	11.1	11.4	11.5	11.8	11.5	10.9	10.0	9.9	10.3	10.8	10.1	10.1
Sioux City, Iowa.	11.6	11.6	12.1	11.7	11.3	11.7	11.9	11.2	12.4	13.2	13.9	14.5	14.8	15.8	16.0	15.3	15.3	14.5	13.5	12.7	12.7	12.3	12.1	11.6	13.1
Spokane, Wash.	4.9	5.6	5.6	6.0	5.4	5.5	5.8	5.9	5.5	5.6	5.9	6.8	7.0	7.9	7.9	8.0	8.0	6.9	7.1	6.9	6.6	6.2	6.6	6.1	6.4
Springfield, Ill.	11.5	11.5	11.3	11.0	11.5	11.1	11.5	11.4	12.4	12.1	12.5	12.9	13.7	13.1	12.6	12.7	12.7	11.9	11.4	10.6	10.6	11.1	11.5	11.6	11.8
Springfield, Mo.	12.0	12.0	12.8	12.3	12.0	13.0	13.6	12.5	12.3	13.5	14 2	13.6	13.9	13.8	13.4	13.8	13.8	13.4	12.9	12.0	12.2	12.5	12.8	12.1	12.9
Tacoma, Wash.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tampa, Fla.	5.1	5.5	5.3	5.6	5.9	6.1	6.1	6.4	7.5	9.2	10.6	10.5	10.5	11.8	11.0	10.5	9.9	8.9	7.1	6.6	6.0	5.7	5.2	5.2	7.6
Toledo, Ohio.	11.0	11.0	10.7	10.2	9.8	10.0	10.6	10.9	11.2	12.2	12.6	13.6	14.2	14.5	13.9	13.6	13.4	12.4	11.2	10.6	11.2	11.1	11.1	10.8	11.7
Vicksburg, Miss.	9.7	9.8	9.8	9.6	10.1	10.9	9.9	9.8	10.7	11.3	10.8	10.9	10.4	10.4	11.2	10.6	10.2	10.1	10.1	9.6	9.7	9.9	10.5	10.1	10.2
Vineyard Haven, Mass.	11.6	11.5	12.3	12.7	12.4	12.4	11.6	11.9	12.7	13.3	14.0	14.5	14.7	14.8	14.2	13.3	12.1	11.4	11.3	12.0	11.4	11.6	10.8	11.3	12.5
Walla Walla, Wash.	5 8	6.7	6.4	6.4	5.9	6.0	4.9	4.9	5.5	5.0	5.4	5.3	5.5	6.3	7.0	7.5	7.1	6.7	6.1	6.2	5.7	5.4	5.2	5.8	5.9
Washington, D. C.	8.0	7.7	7.4	6.9	6.5	7.0	6.9	7.7	8.0	10.2	10.4	10.9	11.0	11.1	12.0	11.3	10.9	9.7	8.8	8.0	8.2	8.0	8.1	8.0	8.9
Wichita, Kans.	9.9	10.0	9.2	8.9	8.3	8.6	8.4	8.9	10.3	11.0	12.7	12.9	13.1	13.1	13.5	13.4	13.0	12.5	11.2	10.2	10.4	9.8	9.8	10.1	10.8
Williston, N. Dak.	8.4	8.6	8.5	8.0	7.7	7.2	6.9	8.1	8.0	8.2	8.3	9.1	11.0	12.2	13.1	13.6	13.4	12.7	11.3	9.7	9.2	9.9	9.9	9.6	9.7
Wilmington, N. C.	9.1	9.7	9.2	9.2	9.5	9.1	9.1	9.4	10.5	10.4	12.0	11.7	12.2	13.2	12.4	12.6	12.5	11.4	9.5	10.1	10.0	9.9	9.6	9.6	10.5
Winnemucca, Nev.	10.4	9.9	10.0	9.0	9.9	9.1	9.8	9.4	10.3	10.0	9.9	10.0	10.8	11.4	11.6	12.6	12.8	14.0	12.8	11.1	9.9	9.3	9.9	10.2	10.6
Woods Hole, Mass.	17.5	19.1	19.1	19.2	19.5	19.8	18.8	18.8	19.1	18.8	19.6	20.4	20.9	21.4	20.8	19.9	18.6	18.1	19.1	19.5	19.2	19.2	17.3	17.0	19.2
Yankton, S. Dak.	8.0	7.7	7.7	8.1	8.5	8.7	8.7	8.0	8.0	8.0	9.7	10.6	11.1	11.4	12.1	12.1	11.8	11.0	10.4	9.2	8.7	8.4	9.0	9.4	9.4
West Indies.																									
Basseterre, St. Kitts.	10.1	9.7	9.6	10.0	10.0	10.8	11.1	12.2	13.1	13.1	13.2	13.0	13.1	12.8	12.0	11.8	11.2	10.0	10.0	10.6	10.8	11.0	10.9	10.0	11.2
Bridgetown, Bar.	6.6	7.0	6.5	7.1	6.7	6.6	7.8	11.7	13.1	13.9	14.4	13.9	14-2	13.8	13.3	12.6	11.0	8.5	7.3	7.4	7.6	7.0	7.4	7.1	9.7
Cienfuegos, Cuba.	7.3	7.4	7.1	6.9	6.4	5.8	5.5	5.7	6.3	7.9	9.2	10.2	10.6	11.9	12.0	12.2	11.6	10.6	8.1	6.5	6.3	6.8	7.9	7.9	8.3
Havana, Cuba.	8.8	8.9	8.9	8.7	9.2	9.1	8.9	8.9	10.4	13.1	15.1	16.1	16.7	16.6	17.0	16.7	16.6	14.9	12.8	10.9	9.5	9.3	9.3	8.9	11.9
Kingston, Jamaica.	5.8	5.6	5.5	5.8	6.1	6.2	4.1	5.5	4.9	5.7	8.2	9.8	10.6	12.6	12.7	11.3	10.3	7.7	5.9	5.2	5.4	5.0	5.1	5.3	7.1
Port of Spain, Trin.	2.1	1.8	1.7	1.9	2.2	1.9	2.4	4.1	6.9	9.0	9.4	9.9	10.4	10.0	9.9	9.8	8.2	6.3	4.2	3.1	2.4	2.2	2.1	2.1	5.2
Puerto Principe, Cuba	4.8	4.9	5.4	5.4	5.6	5.1	5.2	6.0	9.1	13.5	13.7	13.0	12.3	11.6	10.7	11.0	11.2	10.1	7.9	7.1	6.8	5.9	5.3	5.1	8.2
Roseau, Dominica.	4.4	4.5	4.8	4.7	5.0	5.5	5.6	6.1	7.1	7.8	8.1	7.9	8.3	8.8	8.5	8.6	7.5	6.1	5.4	5.5	5.0	5.4	4.7	4.7	6.3
San Juan, Puerto Rico	9.0	8.7	8.1	8.3	8.6	8.3	8.8	8.8	11.4	14.1	15.2	15.7	16.2	16.1	16.2	15.7	14.9	13.2	11.6	11.2	10.1	9.8	10.0	9.8	11.7
Santiago de Cuba*.	3.9	4.1	4.0	4.2	4.6	4.0	3.9	4.5	6.0	7.1	7.3	7.7	7.8	8.2	8.0	7.9	6.5	5.2	4.2	4.8	4.8	4.7	4.5	4.7	5.3
Santo Domingo, S. D.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Willemstad, Curaçao.	11.1	11.0	11.1	10.6	10.5	10.4	10.6	13.6	15.4	16.2	16.2	16.3	16.4	16.5	16.1	15.6	15.4	14.0	12.9	12.3	12.6	12.4	12.2	11.8	13.4

* For 26½ days.

TABLE VI.—*Resultant winds from observations at 8 a. m. and 8 p. m., daily, during the month of February*, 1900.

Stations.	Component direction from—				Resultant.	
	N.	S.	E.	W.	Direction from—	Duration.
New England.	*Hours.*	*Hours.*	*Hours.*	*Hours.*	°	*Hours.*
Eastport, Me	16	9	14	30	n. 66 w.	18
Portland, Me	22	14	7	27	n. 68 w.	22
Northfield, Vt	18	30	2	14	s. 45 w.	17
Boston, Mass	17	12	12	29	n. 71 w.	18
Nantucket, Mass	25	16	10	22	n. 48 w.	14
Woods Hole, Mass	23	9	13	24	n. 38 w.	18
Block Island, R. I	17	11	16	28	n. 63 w.	13
New Haven, Conn	23	5	11	25	n. 38 w.	23
Middle Atlantic States.						
Albany, N. Y	19	20	5	22	s. 87 w.	17
Binghamton, N. Y.†	9	4	3	16	n. 69 w.	14
New York, N. Y	20	11	16	24	n. 42 w.	12
Harrisburg, Pa.†	7	5	9	11	n. 45 w.	3
Philadelphia, Pa	19	13	15	23	n. 53 w.	10
Atlantic City, N. J	15	15	13	23	w.	10
Cape May, N. J	18	15	13	20	n. 67 w.	8
Baltimore, Md	9	12	20	25	s. 59 w.	6
Washington, D. C	19	17	12	21	n. 77 w.	9
Lynchburg, Va	14	19	13	25	s. 63 w.	13
Norfolk, Va	17	21	13	18	s. 51 w.	6
Richmond, Va	16	21	11	18	s. 54 w.	9
South Atlantic States.						
Charlotte, N. C	18	21	16	16	s.	3
Hatteras, N. C	23	16	10	19	n. 52 w.	11
Raleigh, N. C	15	16	14	23	s. 84 w.	9
Wilmington, N. C	15	14	11	21	n. 84 w.	10
Charleston, S. C	19	14	14	24	n. 63 w.	11
Augusta, Ga	11	13	11	28	s. 83 w.	17
Savannah, Ga	15	16	13	25	s. 86 w.	13
Jacksonville, Fla	20	10	16	23	n. 35 w.	12
Florida Peninsula.						
Jupiter, Fla	16	34	17	16	s. 3 e.	18
Key West, Fla	15	14	34	7	n. 88 e.	27
Tampa, Fla	14	18	20	17	s. 37 e.	5
Eastern Gulf States.						
Atlanta, Ga	15	15	18	21	w.	3
Macon, Ga	10	8	8	10	n. 45 w.	3
Pensacola, Fla.†	14	17	8	8	s.	3
Mobile, Ala	27	17	10	21	n. 48 w.	15
Montgomery, Ala	14	18	19	17	s. 27 e.	4
Meridian, Miss.†	9	6	6	11	n. 59 w.	6
Vicksburg, Miss	17	24	17	12	s. 36 e.	9
New Orleans, La	18	18	19	15	e.	4
Western Gulf States.						
Shreveport, La	12	24	15	16	s. 5 w.	12
Fort Smith, Ark	17	10	28	11	n. 45 e.	24
Little Rock, Ark	18	17	18	21	n. 72 w.	3
Corpus Christi, Tex	19	18	25	7	n. 87 e.	18
Fort Worth, Tex†	11	11	4	8	w.	4
Galveston, Tex	15	19	21	14	s. 60 e.	8
Palestine, Tex	18	25	6	14	s. 49 w.	11
San Antonio, Tex	24	16	18	10	n. 45 e.	11
Ohio Valley and Tennessee.						
Chattanooga, Tenn	14	22	13	20	s. 60 w.	8
Knoxville, Tenn	21	17	11	23	n. 72 w.	13
Memphis, Tenn	21	19	16	18	n. 45 w.	3
Nashville, Tenn	17	22	15	16	s. 11 w.	5
Lexington, Ky	6	11	6	13	s. 54 w.	9
Louisville, Ky	14	22	11	20	n. 48 w.	12
Evansville, Ind.†	7	11	8	10	s. 27 w.	4
Indianapolis, Ind	19	14	13	23	n 63 w.	11
Cincinnati, Ohio	12	19	18	22	s. 34 w.	7
Columbus, Ohio	9	15	17	25	s. 53 w.	10
Pittsburg, Pa	17	16	14	22	n. 83 w.	8
Parkersburg, W. Va	11	17	12	27	s. 72 w.	16
Elkins, W. Va	15	18	9	25	s. 79 w.	16
Lower Lake Region.						
Buffalo, N. Y	7	19	10	31	s. 60 w.	24
Oswego, N. Y	10	20	18	24	s. 31 w.	12
Rochester, N. Y	9	22	9	29	s. 57 w.	24
Erie, Pa	12	18	7	30	s. 75 w.	24
Cleveland, Ohio	5	26	14	24	s. 23 w.	23
Sandusky, Ohio	8	19	12	28	s. 56 w.	19
Toledo, Ohio	10	15	16	28	s. 67 w.	13
Detroit, Mich	12	16	12	30	s. 77 w.	18
Upper Lake Region.						
Alpena, Mich	18	12	7	30	n. 75 w.	24
Escanaba, Mich	18	13	1	31	n. 81 w.	30
Grand Haven, Mich	22	13	19	18	n. 6 e.	9
Marquette, Mich	17	10	9	38	n. 76 w.	30
Port Huron, Mich	11	19	8	28	s. 68 w.	22
Sault Ste. Marie, Mich	11	17	19	19	s.	6
Chicago, Ill	19	16	9	24	n. 79 w.	15
Milwaukee, Wis	18	13	6	22	n. 69 w.	17
Green Bay, Wis	16	23	6	25	s. 70 w.	20
Duluth, Minn	24	13	8	25	n. 57 w.	20
North Dakota.						
Moorhead, Minn	21	16	13	23	n. 63 w.	11
Bismarck, N. Dak	32	7	14	21	n. 16 w.	26
Williston, N. Dak	30	11	7	22	n. 38 w.	24

Stations.	Component direction from—				Resultant.	
	N.	S.	E.	W.	Direction from—	Duration.
Upper Mississippi Valley.	*Hours.*	*Hours.*	*Hours.*	*Hours.*	°	*Hours.*
St. Paul, Minn	24	15	8	22	n. 57 w.	17
La Crosse, Wis.†	14	7	2	12	n. 55 w.	12
Davenport, Iowa	16	6	17	28	n. 48 w.	15
Des Moines, Iowa	26	11	20	13	n. 25 e.	17
Dubuque, Iowa	20	11	11	28	n. 62 w.	19
Keokuk, Iowa	24	15	12	19	n. 41 w.	11
Cairo, Ill	16	23	13	15	s. 16 w.	7
Springfield, Ill	20	18	13	19	n. 72 w.	6
Hannibal, Mo	11	6	7	9	n. 22 w.	5
St. Louis, Mo	17	16	15	19	n. 76 w.	4
Missouri Valley.						
Columbia, Mo.*	8	7	10	8	n. 63 e.	2
Kansas City, Mo	24	13	16	17	n. 5 w.	11
Springfield, Mo	19	20	16	15	s. 45 e.	1
Lincoln, Nebr	28	11	14	16	n. 7 w.	17
Omaha, Nebr	24	15	25	12	n. 55 e.	16
Sioux City, Iowa†	13	8	5	9	n. 39 w.	6
Pierre, S. Dak	24	9	19	15	n. 15 e.	16
Huron, S. Dak	27	8	15	22	n. 20 w.	20
Yankton, S. Dak†	13	4	7	9	n. 13 w.	9
Northern Slope.						
Havre, Mont	17	12	12	31	n. 75 w.	20
Miles City, Mont	31	11	6	17	n. 31 w.	21
Helena, Mont	13	21	4	33	s. 75 w.	30
Kalispell, Mont	22	14	6	29	n. 71 w.	24
Rapid City, S. Dak	24	14	14	17	n. 17 w.	10
Cheyenne, Wyo	22	9	4	32	n. 65 w.	31
Lander, Wyo	15	24	16	19	s. 18 w.	10
North Platte, Nebr	22	15	12	22	n. 55 w.	12
Middle Slope.						
Denver, Colo	21	21	11	19	w.	8
Pueblo, Colo	20	8	17	22	n. 23 w.	13
Concordia, Kans	26	17	11	10	n. 6 e.	9
Dodge, Kans	27	16	11	15	n. 20 w.	12
Wichita, Kans	26	22	13	6	n. 60 e.	8
Oklahoma, Okla	23	22	10	8	n. 63 e.	2
Southern Slope.						
Abilene, Tex	19	24	13	14	s. 11 w.	5
Amarillo, Tex	21	19	11	13	n. 45 w.	3
Southern Plateau.						
El Paso, Tex	19	8	12	31	n. 60 w.	22
Santa Fe, N. Mex	30	15	15	14	n. 4 e.	15
Flagstaff, Ariz	20	9	14	27	n. 50 w.	17
Phenix, Ariz	10	8	27	21	n. 37 e.	10
Yuma, Ariz	23	7	11	23	n. 37 w.	20
Independence, Cal	28	12	8	24	n. 45 w.	23
Middle Plateau.						
Carson City, Nev	13	22	14	21	s. 38 w.	11
Winnemucca, Nev	15	17	8	28	s. 84 w.	20
Cedar City, Utah	14	25	14	11	s. 15 e.	11
Salt Lake City, Utah	21	15	18	17	n. 9 e.	6
Grand Junction, Colo	19	13	20	16	n. 34 e.	7
Northern Plateau.						
Baker City, Oreg	18	26	10	15	s. 32 w.	9
Boise, Idaho	19	17	19	17	n. 45 e.	3
Pocatello, Idaho	5	26	11	23	s. 30 w.	24
Spokane, Wash	13	24	14	17	s. 15 w.	11
Walla Walla, Wash	4	40	7	12	s. 8 w.	36
North Pacific Coast Region.						
Neah, Wash						
Astoria, Oreg	15	16	18	24	s. 80 w.	6
Port Crescent, Wash.*	0	9	12	12	s.	9
Seattle, Wash	12	25	21	12	s. 35 e.	16
Tacoma, Wash	16	24	10	23	s. 51 w.	13
Portland, Oreg	11	24	17	15	s. 9 e.	13
Roseburg, Oreg	17	17	18	20	w.	2
Middle Pacific Coast Region.						
Eureka, Cal	19	21	16	14	s. 45 e.	3
Mount Tamalpais, Cal	29	7	5	27	n. 45 w.	31
Red Bluff, Cal	28	14	14	11	n. 12 e.	14
Sacramento, Cal	15	26	21	10	s. 45 e.	16
San Francisco, Cal	13	10	8	34	n. 83 w.	26
South Pacific Coast Region.						
Fresno, Cal	34	4	12	20	n. 15 w.	31
Los Angeles, Cal	21	12	7	28	n. 67 w.	23
San Diego, Cal	27	5	15	23	n. 20 w.	23
San Luis Obispo, Cal	32	3	5	21	n. 29 w.	33
West Indies.						
Basseterre, St. Kitts Island	17	0	47	0	n. 70 e.	50
Bridgetown, Barbados	21	1	45	0	n. 66 e.	49
Cienfuegos, Cuba	36	8	23	1	n. 38 e.	36
Havana, Cuba	10	12	37	6	s. 87 e.	31
Kingston, Jamaica	28	4	23	3	n. 40 e.	31
Port of Spain, Trinidad	14	8	41	2	n. 81 e.	40
Puerto Principe, Cuba	29	4	32	3	n. 49 e.	38
Roseau, Dominica, W. I	15	10	40	2	n. 83 e.	38
San Juan, Puerto Rico	5	23	40	1	s. 65 e.	43
Santiago de Cuba, Cuba	27	15	23	3	n. 59 e	23
Santo Domingo, S. Domingo, W. I.	42	5	11	3	n. 12 e.	38
Willemstad, Curaçao	2	1	55	0	n. 90 e.	55

* From observations at 8 p. m. only.

† From observations at 8 a. m. only.

TABLE VII.—*Thunderstorms and auroras, February, 1900.*

States.	No. of stations.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total. No.	Total. Days.	
Alabama	52	T.				1				9	1	2	3	6												2			1	9				34	9	T.
		A.																																0	0	A.
Arizona	56	T.							5																									5	1	T.
		A.																																0	0	A.
Arkansas	57	T.			6	4		2	9	3					1							7	1					15	4				52	10	T.
		A.																																0	0	A.
California	167	T.																		3														3	1	T.
		A.																																0	0	A.
Colorado	81	T.																																0	0	T.
		A.										1												1										2	2	A.
Connecticut	21	T.																						2		16	1							19	3	T.
		A.																																0	0	A.
Delaware	5	T.																																0	0	T.
		A.																																0	0	A.
Dist. of Columbia	4	T.																																0	0	T.
		A.																																0	0	A.
Florida	47	T.				5	1					1			1	1	1			1		1	2			3			11				28	11	T.
		A.																																0	0	A.
Georgia	55	T.				2	1			5	1	2	2	2	1								5						4				25	10	T.
		A.																																0	0	A.
Idaho	34	T.																						2										2	1	T.
		A.																																0	0	A.
Illinois	92	T.			4	2		1	5	11				1																				24	6	T.
		A.															1	1						1										3	3	A.
Indiana	58	T.							6	1																								7	2	T.
		A.					1																											1	1	A.
Indian Territory	11	T.								1							1												1					3	1	T.
		A.																																0	0	A.
Iowa	149	T.			4																													4	1	T.
		A.			1																													1	1	A.
Kansas	77	T.			2																								6					8	2	T.
		A.	1																															1	1	A.
Kentucky	41	T.							9	7																								16	2	T.
		A.																																0	0	A.
Louisiana	46	T.			8	2	3	3	1	8	5	10	5	7	1				1			6		1	2	3	1	2	9	6				84	20	T.
		A.																																0	0	A.
Maine	19	T.		1																							6							7	2	T.
		A.																																0	0	A.
Maryland	48	T.				2																	1			2								5	3	T.
		A.	1	1																														2	2	A.
Massachusetts	48	T.																	1							22	14							37	3	T.
		A.																																0	0	A.
Michigan	106	T.							2	3																								5	2	T.
		A.				1																												1	1	A.
Minnesota	67	T.																																0	0	T.
		A.																																0	0	A.
Mississippi	41	T.							3	8	4	3	4	7								7				2			6	9				53	10	T.
		A.																																0	0	A.
Missouri	93	T.			16	7	1		6	6																			1	2				39	7	T.
		A.																	1															1	1	A.
Montana	40	T.																					2											2	1	T.
		A.																1			1							1						3	3	A.
Nebraska	142	T.																																0	0	T.
		A.																																0	0	A.
Nevada	40	T.																																0	0	T.
		A.																																0	0	A.
New Hampshire	19	T.		1											1								1			3	3							9	5	T.
		A.																																0	0	A.
New Jersey	51	T.																						1		17	3							21	3	T.
		A.																																0	0	A.
New Mexico	31	T.																						2	1	2	2							7	4	T.
		A.																																0	0	A.
New York	99	T.													3								22			1			1					27	4	T.
		A.											1																					1	1	A.
North Carolina	56	T.				1				3	1	1																						6	4	T.
		A.																																0	0	A.
North Dakota	48	T.																																0	0	T.
		A.																						1		1								2	2	A.
Ohio	128	T.							3																									3	1	T.
		A.									1		1																1					3	3	A.
Oklahoma	23	T.							4	5							1									1			7	1				19	6	T.
		A.																																0	0	A.
Oregon	74	T.						1															4											5	2	T.
		A.																																0	0	A.
Pennsylvania	91	T.					1								1								9											11	3	T.
		A.									1	1																						2	2	A.
Rhode Island	7	T.																								3								3	1	T.
		A.																																0	0	A.
South Carolina	46	T.								2	2		6	1	1								16			6								34	7	T.
		A.																																0	0	A.
South Dakota	56	T.																																0	0	T.
		A.																						1										1	1	A.
Tennessee	56	T.				1			6	20	3												1						1	3				35	7	T.
		A.																																0	0	A.
Texas	95	T.			1		1	1	3				5	4								1							13	5				34	9	T.
		A.																																0	0	A.
Utah	47	T.						1													1													2	2	T.
		A.		1																														1	1	A.
Vermont	16	T.																								2	1							3	2	T.
		A.																																0	0	A.
Virginia	50	T.				1				3									1				7	2										14	5	T.
		A.																																0	0	A.
Washington	64	T.																					7											7	1	T.
		A.																																0	0	A.
West Virginia	43	T.								2																1								3	2	T.
		A.																																0	0	A.
Wisconsin	60	T.																																0	0	T.
		A.																																0	0	A.
Wyoming	31	T.																																0	0	T.
		A.																																		A.
Sums	2,893	T.	0	2	41	28	8	9	62	97	17	19	25	28	10	1	3	1	2	4	1	22	69	19	4	85	31	2	59	56				705		T.
		A.	2	2	1	1	1	0	0	0	2	2	2	0	0	0	1	2	1	0	1	1	0	2	2	0	0	1	0	1				25		A.

TABLE VIII.—*Average hourly sunshine (in percentages), February, 1900.*

Stations.	Instrument.	Percentages for each hour of local mean time ending with the respective hour.																Hours of sunshine.			
		A. M.								P. M.								Total.			
		5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	Actual.	Possible.	Percent of possible.	Personal estimate.
																		Hours.	*Hours.*		
Albany, N. Y	T.			27	30	50	70	74	79	85	90	80	61	45	24			189.6	295.4	64	40
Atlanta, Ga	T.			26	26	32	39	49	61	65	66	66	62	44	23			149.4	307.1	49	36
Atlantic City, N. J	T.			52	52	54	70	75	79	78	82	77	56	39	32			192.8	300.8	64	47
Baltimore, Md	T.			14	30	46	52	64	74	64	66	60	57	45	35			162.9	300.8	54	35
Binghamton, N. Y	T.			10	13	19	36	52	55	49	42	33	26	18	16			98.8	296.5	33	25
Bismarck, N. Dak	P.			12	40	46	49	56	57	55	61	61	48	36	41			146.2	*288.7	51	41
Boise, Idaho*	P.			38	33	38	42	49	51	41	48	51	40	30	26			110.0	264.0	42	35
Boston, Mass	T.			52	43	44	50	56	58	62	47	49	48	43	30			145.9	296.5	49	39
Buffalo, N. Y	T.			8	17	30	44	59	74	72	68	60	42	27	18			140.6	295.4	48	29
Cedar City, Utah	T.			63	61	67	76	91	94	94	94	88	82	74	63			243.6	302.3	81	59
Charleston, S. C	T.			34	32	39	42	40	46	49	44	41	38	28	29			119.9	308.3	39	39
Chattanooga, Tenn	T.			21	21	25	34	45	51	49	50	47	42	28	29			116.5	305.8	38	39
Cheyenne, Wyo	P.			21	42	54	50	54	48	51	53	56	52	45	42			148.4	298.4	50	47
Chicago, Ill	T.			10	24	31	46	60	65	66	63	56	41	33	33			140.8	296.5	47	42
Cincinnati, Ohio	T.			31	22	34	37	45	44	58	53	48	32	20	22			115.4	300.8	38	30
Cleveland, Ohio	T.			10	12	16	27	36	50	50	49	39	29	20	19			94.5	296.5	32	31
Columbia, Mo	T.			57	51	58	67	66	62	62	60	68	62	50	46			179.8	300.8	60	33
Columbus, Ohio	T.			32	21	29	41	53	64	49	53	46	33	26	34			123.4	299.7	41	29
Denver, Colo	P.			47	62	82	89	84	84	72	71	71	75	65	55			222.3	299.7	74	60
Des Moines, Iowa	T.			38	33	25	36	52	58	56	53	52	45	32	34			128.9	296.5	43	36
Detroit, Mich	T.			38	21	24	39	42	49	51	49	41	34	20	13			106.4	296.5	36	28
Dodge, Kans	P.			35	47	59	59	58	48	59	65	66	67	55	44			172.8	302.3	57	49
Dubuque, Iowa	T.			41	33	34	43	56	59	54	54	43	40	38	40			134.0	296.5	45	41
Eastport, Me	P.			43	48	54	61	64	54	54	55	53	44	39	33			150.6	291.9	52	38
Elkins, W. Va	T.			10	4	7	22	32	42	38	39	29	16	7	8			68.0	300.8	23	15
Erie, Pa	T.			17	12	14	24	34	41	41	42	32	24	19	18			82.2	296.5	28	21
Escanaba, Mich	T.			26	26	28	38	48	56	58	54	44	33	35	37			121.3	290.4	42	41
Eureka, Cal	P.			3	14	21	32	51	54	54	49	46	51	34	25			117.4	298.4	39	37
Fresno, Cal	T.			72	65	77	81	80	81	86	82	81	83	74	62			236.6	303.3	78	60
Galveston, Tex	P.			28	36	41	51	53	48	54	56	56	52	58	38			151.6	313.1	48	46
Grand Junction, Colo	P.			52	51	59	67	69	70	80	79	80	70	57	80			207.1	300.8	69	48
Harrisburg, Pa	T.			37	35	40	51	61	62	55	50	45	41	23	18			133.6	299.7	45	36
Helena, Mont	P.			12	16	17	25	36	35	37	42	46	46	33	25			95.7	288.7	33	21
Huron, S. Dak	T.			38	39	43	66	81	86	84	84	89	70	61	49			203.1	293.8	69	54
Indianapolis, Ind	T.			29	41	52	59	56	61	58	53	44	32	26	22			139.4	299.7	47	29
Jacksonville, Fla	T.			48	43	49	56	59	57	61	59	58	55	41	32			162.3	312.1	52	48
Jupiter, Fla	T.			42	48	70	76	81	88	87	84	70	62	58	56	0		220.1	315.0	70	54
Kalispell, Mont	T.			0	12	25	36	46	50	48	45	31	34	19	8			97.2	286.8	34	34
Kansas City, Mo	P.			40	42	40	49	50	51	49	45	44	55	54	58			145.3	300.8	48	47
Key West, Fla	T.			51	59	66	84	86	90	85	87	85	78	64	63	60		241.6	317.0	76	55
Knoxville, Tenn	T.			21	19	25	36	47	42	43	42	39	40	26	22			105.9	305.0	35	38
Lexington, Ky	T.			0	9	32	40	54	59	58	62	45	33	16	3			114.6	302.3	38	35
Little Rock, Ark	T.			24	25	35	45	52	48	54	48	44	36	27	24			122.1	305.8	40	35
Los Angeles, Cal	P.			72	66	71	84	85	84	86	94	93	94	81	78			255.0	307.1	83	71
Louisville, Ky	T.			9	19	29	48	55	60	56	61	51	36	11	6			120.9	302.3	40	34
Macon, Ga	T.			26	25	32	47	55	57	68	62	57	52	43	35			148.7	308.3	48	45
Meridian, Miss	T.			45	35	33	39	48	58	54	51	49	44	31	33			134.5	309.8	43	42
Mount Tamalpais, Cal	P.			67	69	72	67	62	60	74	73	69	69	62	61			203.3	302.3	67	55
Nashville, Tenn	T.			17	14	14	30	41	52	57	61	54	38	28	25			114.6	305.0	38	36
New Haven, Conn	T.			56	48	52	57	63	70	66	68	71	60	42	35			173.8	298.4	58	59
New Orleans, La	T.			36	34	44	59	67	62	57	56	59	55	45	36			162.2	312.1	52	52
New York, N. Y	T.			41	44	51	55	65	72	69	77	73	54	49	38			177.5	298.4	59	42
Norfolk, Va	T.			26	32	44	65	75	76	71	70	66	57	48	42			178.2	303.3	59	48
Northfield, Vt	P.			21	24	40	42	39	39	41	48	46	43	25	19			111.0	293.8	38	30
Oklahoma, Okla	T.			44	47	50	67	71	81	79	76	73	66	58	59			201.4	305.8	66	49
Omaha, Nebr	T.			15	11	17	33	45	63	63	61	60	52	37	36			130.0	298.4	44	44
Parkersburg, W. Va	T.			31	18	18	26	50	53	49	41	34	29	15	16			97.3	300.8	32	32
Phenix, Ariz	P.			76	66	76	85	84	84	98	92	95	94	88	85			263.6	308.3	86	78
Philadelphia, Pa	T.			53	54	52	53	58	61	64	60	50	43	41	42			158.9	299.7	53	36
Pittsburg, Pa	T.			3	11	10	12	27	38	35	31	30	20	15	11			65.6	298.4	22	31
Pocatello, Idaho	T.			31	23	22	36	52	62	59	50	46	31	22	24			116.8	295.4	40	30
Portland, Me	T.			38	31	42	52	62	64	67	70	61	54	38	35			157.0	293.8	53	47
Portland, Oreg	T.			0	1	14	22	25	32	36	35	30	18	12	4			63.9	290.4	22	20
Pueblo, Colo	T.			54	64	68	84	94	94	98	90	94	82	55	55			245.5	302.3	81	64
Raleigh, N. C	T.			45	33	38	50	57	60	62	58	53	49	41	35			149.1	305.0	49	43
Rochester, N. Y	T.			4	8	15	36	43	48	52	44	32	26	18	15			92.2	295.4	31	28
St. Louis, Mo	T.			19	25	47	63	70	66	64	60	52	36	26	27			147.6	300.8	49	36
St. Paul, Minn	P.			38	34	49	62	61	64	68	73	64	59	38	36			165.0	291.9	57	48
Salt Lake City, Utah	T.			47	36	39	51	57	68	63	64	61	55	32	24			151.9	298.4	51	46
San Diego, Cal	P.			68	70	75	84	94	91	90	92	96	92	79	72			263.1	308.3	85	85
San Francisco, Cal	T.			28	32	58	74	88	82	87	86	87	85	71	63			222.3	302.3	74	62
Santa Fe, N. Mex	P.			67	70	72	80	86	88	89	81	79	76	68	67			238.0	305.0	78	70
Sault Ste. Marie, Mich	T.			11	15	24	47	62	61	62	56	50	27	22	20			121.7	290.4	42	40
Savannah, Ga	T.			38	36	36	44	46	45	49	57	55	41	33	31			134.5	309.8	43	39
Seattle, Wash	T.			0	7	18	32	36	42	43	47	37	22	15	10			84.8	286.8	30	25
Spokane, Wash	T.			38	19	21	29	40	45	42	36	30	20	11	4			82.2	286.8	29	18
Tacoma, Wash	T.			6	4	14	23	26	37	41	34	29	20	10	9			67.4	288.7	23	20
Tampa, Fla	T.			52	51	49	61	69	66	70	73	66	55	41	39	0		182.8	314.1	58	47
Toledo, Ohio	T.			38	29	44	60	67	71	74	71	66	55	42	32			168.2	296.5	57	40
Topeka, Kans	T.			26	39	39	43	53	59	59	58	56	55	42	41			148.4	300.8	49	45
Vicksburg, Miss	T.			41	38	47	61	67	66	70	68	64	60	41	34			173.6	309.8	56	42
Washington, D. C	P.			45	41	41	45	61	58	52	57	56	58	51	49			155.7	300.8	52	48
Wilmington, N. C	T.			39	37	39	49	56	60	53	51	49	47	31	20			138.9	307.1	45	48
Yankton, S. Dak	T.			27	16	29	44	66	71	74	77	62	52	25	16			147.1	295.4	50	36
Basseterre, St. Kitts	T.			45	55	75	83	91	93	96	90	85	84	78	66	54		258.5	325.0	80	51
Bridgetown, Barbados	T.			53	60	65	81	82	85	83	82	78	71	70	67	41		241.2	328.4	73	43
Cienfuegos, Cuba	T.			60	60	59	72	75	80	87	83	81	75	55	56	100		226.4	320.4	71	62
Havana, Cuba	T.			35	39	54	74	75	72	68	66	65	55	50	49	26		190.7	319.8	60	40
Kingston, Jamaica, W. I	T.			26	29	54	70	71	64	70	68	59	52	22	7	0		162.3	324.0	50	56
Port of Spain, Trinidad, W. I	T.			64	64	79	79	70	83	81	79	76	69	58	55	58		236.8	330.5	72	56
Puerto Principe, Cuba	T.			47	53	63	69	63	65	60	59	58	52	40	56	25		179.0	321.4	56	48
Roseau, Dominica, W. I	T.			14	16	52	69	79	82	89	93	88	84	78	62	70		225.4	326.9	69	64
San Juan, Puerto Rico	T.			27	42	58	67	73	82	78	72	78	74	62	44	11		209.0	324.0	65	63
Santiago de Cuba, Cuba†	T.			77	78	70	80	78	77	77	81	80	72	51	51	33		216.9	299.2	72	57
Santo Domingo, Santo Domingo	T.			52	51	56	60	64	58	60	66	70	56	48	50	56		187.4	324.0	58	55
Willemstad, Curaçao	T.			26	21	35	59	73	74	68	71	69	55	41	21	25		169.8	329.2	52	55

*All values for 25 days. †All values for 26 days.

TABLE IX.—*Accumulated amounts of precipitation for each 5 minutes, for storms in which the rate of fall equaled or exceeded 0.25 in any 5 minutes, or 0.75 in 1 hour during February, 1900, at all stations furnished with self-registering gages.*

Stations.	Date.	Total duration.		Total am't of precipitation.	Excessive rate.		Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
	1	2	3	4	5	6	7														
Albany, N. Y.	12-13			0.66														*			
Atlanta, Ga.	12-13	4.15 p.m.	D. N.	2.20	7.10 p.m.	7.40 p.m.	0.86	0.13	0.30	0.44	0.51	0.58	0.63	0.67	0.69	0.71					
Atlantic City, N. J.	12-13			0.98														*			
Baltimore, Md.	12-13			1.42														0.35			
Binghamton, N. Y.	12-13			0.62														0.22			
Bismarck, N. Dak.	26-27			0.13														*			
Boise, Idaho	20-21			0.29														0.10			
Boston, Mass.	24-25			1.61														0.35			
Buffalo, N. Y.	12-13			1.06														0.25			
Cairo, Ill.	7			0.45														0.20			
Charleston, S. C.	28			0.56														0.36			
Chicago, Ill.	27-28			1.15														*			
Cincinnati, Ohio	8			0.40														0.17			
Cleveland, Ohio	18-19			0.56														*			
Columbia, Mo.	27-28			1.69														*			
Columbus, Ohio	8			0.51														0.20			
Denver, Colo.	11-12			0.15														*			
Des Moines, Iowa	7-8			0.13														*			
Detroit, Mich.	12-13			0.66														0.13			
Dodge, Kans	27			0.60														*			
Duluth, Minn.	10-11			0.20														*			
Eastport, Me.	25			0.95														0.30			
Elkins, W. Va.	12-13			0.71														0.21			
Erie, Pa.	28			1.14														*			
Escanaba, Mich.	7-8			0.71														0.09			
Evansville, Ind	7-8			1.24														0.35			
Fort Worth, Tex.	8			0.05								0.05									
Fresno, Cal.	18			0.04					0.04												
Galveston, Tex.	28			0.89														0.71			
Grand Junction, Colo.	26-27			0.05														0.02			
Harrisburg, Pa	12-13			0.98														0.31			
Hatteras, N. C.	21	5.30 p.m.	11.50 p.m.	2.49	10.00 p.m.	11.30 p.m.	0.76	0.05	0.10	0.25	0.45	0.50	0.60	0.65	0.75	1.10	1.30	1.47	1.67	1.73	
Huron, S. Dak.	25			0.10														*			
Indianapolis, Ind.	7-8			0.74														0.21			
Jacksonville, Fla.	28			0.79														0.38			
Jupiter, Fla.	†	4.12 p.m.	2.00 a.m.	2.11	10.50 p.m.	11.50 p.m.	0.36	0.21	0.58	0.91	0.94	0.96	1.07	1.10	1.12	1.12	1.12	1.44			
Kalispell, Mont	6			0.36														*			
Kansas City, Mo.	27			1.36														*			
Key West, Fla.	24			0.46														0.37			
Knoxville, Tenn	8	5.15 p.m.	7.55 p.m.	0.82	6.15 p.m.	6.40 p.m.	0.08	0.16	0.33	0.46	0.54	0.59	0.60								
Lexington, Ky.	7-8			0.71														*			
Lincoln, Nebr.	7-8			0.42														*			
Little Rock, Ark.	27-28			1.77														0.49			
Los Angeles, Cal.	5			T.																	
Louisville, Ky.	7-8			0.89														0.35			
Macon, Ga.	9-10			2.84														0.32			
Memphis, Tenn.	8	7.00 a.m.	1.40 p.m.	1.71	7.43 a.m.	8.35 a.m.	0.12	0.30	0.55	0.63	0.68	0.72	0.72	0.73	0.74	0.83	0.89	0.93			
Meridian, Miss.	12	D. N.	12.15 p.m.	2.40	7.25 a.m.	8.35 a.m.	0.48	0.15	0.22	0.24	0.27	0.32	0.40	0.48	0.56	0.65	0.77	0.98	1.15		
Milwaukee, Wis.	7-8			1.46														0.20			
Montgomery, Ala.	11-12			1.74														0.52			
Nantucket, Mass.	22			1.10														0.13			
Nashville, Tenn.	8			0.98														0.52			
New Orleans, La.	12	1.15 p.m.	7.50 p.m.	1.54	2.15 p.m.	3.05 p.m.	0.17	0.07	0.21	0.27	0.47	0.65	0.80	0.89	0.93	0.97	1.01	1.06			
New York, N. Y.	4-5			1.61														0.55			
Norfolk, Va.	18			0.74														0.38			
Northfield, Vt.	12-13			1.97														0.32			
Oklahoma, Okla.	7-8			0.72														0.29			
Omaha, Nebr.	7-8			0.44														0.10			
Parkersburg, W. Va.	7-8			0.47														0.20			
Philadelphia, Pa.	4-5			0.82														0.28			
Pittsburg, Pa.	8			0.50														*			
Pocatello, Idaho	12-13			0.42														*			
Portland, Me.	5			1.50														0.48			
Portland, Oreg.	17-18			0.74														0.13			
Raleigh, N. C.	11-13			1.59														0.61			
Richmond, Va.	21-22	1.48 p.m.	D. N.	1.36	10.15 p.m.	11.00 p.m.	0.27	0.05	0.12	0.20	0.25	0.29	0.43	0.59	0.75	0.89	0.90	0.92			
Rochester, N. Y.	21-23			0.96														0.12			
St. Louis, Mo.	7-8			1.90														0.29			
St. Paul, Minn.	7-8			0.43														0.10			
Salt Lake City, Utah	9			0.23														*			
San Diego, Cal.	5			0.03														0.03			
San Francisco, Cal.	19-20			0.50														0.08			
Savannah, Ga.	28			0.79														0.26			
Seattle, Wash.	21			0.51														0.26			
Spokane, Wash.	20-21			0.28														*			
Tampa, Fla.	4	12.05 p.m.	7.30 p.m.	1.12	5.30 p.m.	5.55 p.m.	0.43	0.07	0.19	0.42	0.54	0.62									
Vicksburg	28	D. N.	D. N.	1.66	1.34 a.m.	2.05 a.m.	0.05	0.24	0.59	0.72	0.78	0.80	0.83	0.86	0.88	0.90	0.91	0.95			
Washington, D. C.	21-22			1.21														0.44			
Wilmington, N. C.	4			0.67														0.62			
Yankton, S. Dak	5			0.10														*			
Basseterre, St. Kitts	5			0.40														0.30			
Bridgetown, Barbados	5			0.36														0.20			
Cienfuegos, Cuba	25	D. N.	7.35 a.m.	0.99	2.51 a.m.	3.25 a.m.	T.	0.21	0.49	0.66	0.71	0.74	0.78	0.82	0.84	0.88	0.90	0.93			
Havana, Cuba	17-18	3.05 p.m.	D. N.	1.94	4.55 p.m.	5.35 p.m.	0.64	0.06	0.22	0.38	0.56	0.74	0.85	0.90	0.95	0.96	0.98	1.08			
Kingston, Jamaica	27			0.12				0.12													
Port of Spain, Trin.	21-22			0.35														0.24			
Puerto Principe, Cuba	25			0.62														0.30			
Roseau, Dom., W. I.	15			0.30														0.08			
San Juan, Puerto Rico	8-9			0.65														0.36			
Santiago de Cuba	22			0.36					0.36												
Santo Domingo, S. D.	16-17			0.37														0.29			
Willemstad, Curaçao	27			0.10								0.10									

* Self-register not working.

† February 28 to March 1.

TABLE X.—*Data furnished by the Canadian Meteorological Service, February*, 1900.

Stations.	Pressure.			Temperature.				Precipitation.		
	Mean not reduced.	Mean reduced.	Departure from normal.	Mean.	Departure from normal.	Mean maximum.	Mean minimum.	Total.	Departure from normal.	Depth of snow.
	Ins.	*Ins.*	*Ins.*	°	°	°	°	*Ins.*	*Ins.*	*Ins.*
St. Johns, N. F.	29.69	29.84	—.09	27.5	+ 5.5	32.5	22.5	4.78	—0.17	15.0
Sydney, C. B. I.	29.87	29.91	—.04	25.1	+ 5.8	33.2	16.9	7.27	+3.08	16.7
Halifax, N. S.	29.84	29.95	—.08	27.6	+ 5.2	35.1	20.2	5.28	+0.58	6.0
Grand Manan, N. B.	29.89	29.94	—.04	25.4	+ 2.0	32.5	18.4	6.96	+3.40	31.7
Yarmouth, N. S.	29.87	29.93	—.09	28.8	+ 3.0	35.0	22.5	4.80	—1.02	15.6
Charlottet'n, P. E. I.	29.87	29.91	—.01	23.5	+ 5.9	31.1	15.8	2.60	—1.10	6.6
Chatham, N. B.	29.90	29.92	—.04	17.2	+ 4.7	27.6	6.7	2.70	—0.61	19.9
Father Point, Que.	29.90	29.96	—.08	14.2	+ 2.7	24.3	4.2	2.70	+1.08	12.1
Quebec, Que.	29.61	29.97	—.07	14.7	+ 2.9	22.1	7.3	5.18	+1.79	18.5
Montreal, Que.	29.75	29.97	—.08	16.9	+ 2.4	24.2	9.5	6.35	+3.53	31.6
Bissett, Ont.	29.33	29.99	—.07	9.8	+ 0.2	23.2	— 3.7	2.99	+0.67	15.2
Ottawa, Ont.	29.60	29.94	—.12	15.2	+ 3.5	24 2	6.1	2.60	—0.18	14.0
Kingston, Ont	29.64	29.98	—.10	18.7	+ 0.9	27.0	10.3	3.84	+1.40	16.5
Toronto, Ont	29.58	30.00	—.09	20.1	— 1.4	27.4	12.8	5.01	+2.70	28.7
White River, Ont.	28.55	30.03	—.05	—1.4	— 1.6	14.0	—16.7	1.38	+0.16	13.8
Port Stanley, Ont	29.32	30.00	—.08	20.0	— 2.8	27.6	12.4	6.06	+3.11	37.5
Saugeen, Ont.	29.22	29.98	—.08	18.5	— 1.4	26.2	10.9	4.42	+1.98	25.5

Stations.	Pressure.			Temperature.				Precipitation.		
	Mean not reduced.	Mean reduced.	Departure from normal.	Mean.	Departure from normal.	Mean maximum.	Mean minimum.	Total.	Departure from normal.	Depth of snow.
	Ins.	*Ins.*	*Ins.*	°	°	°	°	*Ins.*	*Ins.*	*Ins.*
Parry Sound, Ont	29.22	29.96	—.11	15.2	+ 0.9	26.3	4.2	6.31	+3.91	36.4
Port Arthur, Ont.	29.27	30.03	—.07	1.5	— 4.9	13.2	—10.3	0.20	—1.13	2.0
Winnipeg, Man.	29.23	30.15	—.02	—5.3	— 3.7	6.3	—16.9	0.20	—0.97	2.0
Minnedosa, Man.	28.15	30.16	.00	—5.5	— 2.8	6.1	—17.2	0.37	—0.61	3.7
Qu'Appelle, Assin.	27.67	30.15	.00	—5.0	— 4.4	4.2	—14.2	1.90	+1.23	19.0
Medicine Hat, Assin.	27.68	30.15	.00	9 0	— 2.2	21.1	— 3.1	1.04	+0.60	10.2
Swift Current, Assin.	27.39	30.18	+.03	4.2	— 3.8	15.6	— 7.2	0.36	—0.40	3.4
Calgary, Alberta	26.32	30.06	—.04	11.4	— 2.1	23.4	— 0.7	0.40	—0.36	4.0
Banff, Alberta	25.22	30.08	.....	15.6	— 3.6	25.8	5.4	0.65	—0.49	6.5
Edmonton, Alberta	27.64	30.12	+.01	5.5	— 2.8	16.0	— 4.9	2.18	+1.72	21.8
Prince Albert, Sask.	28.42	30.14	.....	—7.1	— 4.1	4.7	—19.0	0.79	+0.06	7.9
Battleford, Sask.	28.29	30.21	.....	—4.5	— 4.6	5.5	—14.6	0.66	+0.09	6.6
Kamloops, B. C	28.83	30.17	. ....	27.5	.....	34.7	20.3	0.26	.....	0.8
Victoria, B. C	29.99	30.08	.....	40.8	— 0.8	45.2	36.5	2.75	—1.36	3.5
Barkerville, N. W. T.	25.53	30.01	.....	19.7	+ 1.0	27.8	11.6	4.30	+1.55	43.0
Hamilton, Bermuda.	29.91	30.07	—.01	61.8	+ 0.3	65.7	57.9	5.17	+0.77	0.0

TABLE XI.—*Heights of rivers referred to zeros of gages, February, 1900.*

Stations.	Distance to mouth of river.	Danger line on gage.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
Mississippi River.	*Miles.*	*Feet.*	*Feet.*		*Feet.*		*Feet.*	*Feet.*
St. Paul, Minn.*	1,954	14	.....	.....	.....	.....	.....	.....
Reeds Landing, Minn	1,884	12	0.1	1,2,7	— 1.0	24	—0.3	1.1
La Crosse, Wis.*	1,819	12	.....	.....	.....	.....	.....	.....
North McGregor, Iowa.*	1,759	18	.....	.....	.....	.....	.....	.....
Dubuque, Iowa.*	1,699	15	.....	.....	.....	.....	.....	.....
Leclaire, Iowa.*	1,609	10	.....	.....	.....	.....	.....	.....
Davenport, Iowa*	1,593	15	.....	.....	.....	.....	.....	.....
Muscatine, Iowa	1,562	16	8.2	12	3.9	26-28	5.4	4.3
Galland, Iowa[1]	1,472	8	.....	.....	.....	.....	.....	.....
Keokuk, Iowa[1]	1,463	15	.....	.....	.....	.....	.....	.....
Hannibal, Mo.[2]	1,402	13	5.0	13,28	0.2	1	4.3	4.8
Grafton, Ill	1,306	28	8.5	22	1.0	3	5.8	7.5
St. Louis, Mo	1,264	30	9.6	24	— 0.1	4	5.2	9.7
Chester, Ill	1,189	36	7.0	25	— 0.8	5	3.4	7.8
Memphis, Tenn	843	33	23.6	23-25	6.7	10	16 5	16.9
Helena, Ark	767	42	31.6	25,26	11.7	11	23.0	19.9
Arkansas City, Ark	635	42	32.4	28	14.5	12,13	24.0	17.9
Greenville, Miss	595	42	27.5	28	11.3	12	19.8	16.2
Vicksburg, Miss	474	45	30.4	28	12.3	13,14	21.0	18.1
New Orleans, La	108	16	9.7	28	4.7	17,18	6.4	5.0
Missouri River.								
Bismarck, N. Dak.	1,309	14	4.2	1,2	1.8	25	2.8	2.4
Pierre, S. Dak.*	1,114	14	.....	.....	.....	.....	.....	.....
Sioux City, Iowa*	784	19	.....	.....	.....	.....	.....	.....
Omaha, Nebr.*	669	18	.....	.....	.....	.....	.....	.....
Plattsmouth, Nebr	641	17	.....	.....	.....	.....	.....	.....
St. Joseph, Mo	481	10	3.2	28	— 2.7	2	0.7	5.9
Kansas City, Mo	388	21	8.5	28	3.7	2	6.3	4.8
Boonville, Mo	199	30	11.5	26	5.4	2-4	8.3	6.1
Hermann, Mo	103	24	5.6	28	1.9	6,7	3.4	3.7
Des Moines River.								
Des Moines, Iowa*	150	19	.....	.....	.....	.....	.....	.....
Illinois River.								
Peoria, Ill	135	14	12.4	28	7.5	7	10.4	4.9
Osage River.								
Bagnell, Mo	70	28	.....	.....	.....	.....	.....	.....
Gasconade River.								
Arlington, Mo	58	16	0.8	12	— 0.5	3-8,23-26	—0.2	1.3
Youghiogheny River.								
Confluence, Pa	59	10	6.1	9	1.8	2-4	2.8	4.3
West Newton, Pa.[3]	15	23	9.6	9	1.0	1	3.9	8.6
Allegheny River.								
Warren, Pa	177	14	6.3	9	2.2	22	3.8	4.1
Oil City, Pa	123	13	7.4	10	2.8	1,22	4.4	4.6
Parker, Pa[3]	73	20	8.0	10	3.0	21,22,28	5.5	7.0
Monongahela River.								
Weston, W. Va.[4]	161	18	6.4	13	0.0	19-21	1.6	6.4
Fairmont, W. Va.	119	25	11.2	14	1.3	1-4	4.3	9.9
Greensboro, Pa.	81	18	15.6	14	7.2	2-4	10.3	8.4
Lock No. 4, Pa.	40	28	19.2	9	7.0	2-4	11.3	12.2
Conemaugh River.								
Johnstown, Pa.[4]	64	7	5.2	9	1.6	1	2.9	3.6
Red Bank Creek.								
Brookville, Pa	35	8	2.6	23	1.8	1-7	2.0	0.8
Beaver River.								
Ellwood Junction, Pa[5]	10	14	.....	.....	.....	.....	.....	.....
Great Kanawha River.								
Charleston, W. Va.	61	30	15.8	15	2.0	3	7.0	13.8
New River.								
Hinton, W. Va.	95	14	8.0	14	1.0	2	3.3	7.0
Cheat River.								
Rowlesburg, W. Va.[6]	36	14	7.3	14	3.8	24	4.8	3.5
Ohio River.								
Pittsburg, Pa.[10]	966	22	17.1	10	2.0	4	8.5	15.1
Davis Island Dam, Pa	960	25	16.2	10	4.1	3,4	9.1	12.1
Wheeling, W. Va.	875	36	25.0	10	4.9	4	12.3	20.1
Parkersburg, W. Va.[7]	785	36	25.3	11	7.8	6	15.8	17.5
Point Pleasant, W. Va.	703	39	30.3	15	5.0	5	17.1	25.3
Huntington, W. Va.	660	50	34.0	15	8.6	5	21.0	25.4
Catlettsburg, Ky	651	50	35.0	15	6.6	6	20.7	28.4
Portsmouth, Ohio	612	50	35.9	15	8.9	6	22.0	27.0
Cincinnati, Ohio	499	50	37.3	17	11.2	7	24.5	26.1
Madison, Ind	413	46	31.4	17	10.9	7	21.6	20.5
Louisville, Ky	367	28	13.3	17	6.0	7	9.8	7.3
Evansville, Ind	184	35	31.1	18,19	9.9	8	21.9	21.2
Paducah, Ky	47	40	30.3	21	9.0	7	21.4	21.3
Cairo, Ill	1,073	45	31.9	21,22	11.4	8	24.2	20.5
Muskingum River.								
Zanesville, Ohio	70	20	15.3	10	7.2	3	10.1	8.1
Scioto River.								
Columbus, Ohio[8]	110	17	.....	.....	.....	.....	.....	.....
Miami River.								
Dayton, Ohio	69	18	5.9	9	1.6	7	2.6	4.3
Wabash River.								
Mount Carmel, Ill.[9]	50	15	12.9	13	2.7	5	7.8	10.2
Licking River.								
Falmouth, Ky.[7]	30	25	14.9	9	2.7	6	6.2	12.2
Clinch River.								
Speers Ferry, Va	156	20	7.5	18	0.1	2,3	2.2	7.4
Clinton, Tenn.	46	25	20.0	15	3.7	2,3	8.8	16.3
Tennessee River.								
Knoxville, Tenn.	614	29	13.0	14	0.7	2	4.2	12.3
Kingston, Tenn.[10]	534	25	15.0	14	1.7	5	5.7	13.3
Chattanooga, Tenn.	430	33	24.3	15	2.5	3,4	9.0	21.8
Bridgeport, Ala.	390	24	18.2	16	1.2	5	6.9	17.0
Florence, Ala.	220	16	14.7	17, 18	2.3	4	7.4	12.4
Riverton, Ala.	190	25	22.2	18	2.4	5	10.3	19.8
Johnsonville, Tenn	94	21	21.3	20	3.7	6	11.9	17.6

Stations.	Distance to mouth of river.	Danger line on gage.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
Cumberland River.	*Miles.*	*Feet.*	*Feet.*		*Feet.*		*Feet.*	*Feet.*
Burnside, Ky.	434	50	25.5	14	2.4	4	10.1	23.1
Carthage, Tenn	257	40	22.7	11	2.7	4	12.0	20.0
Nashville, Tenn	175	40	26.1	13	4.6	5	15.9	21.5
Arkansas River.								
Wichita, Kans	726	10	2.4	27	2.1	9,10	2.2	0.3
Webbers Falls, Ind. T.	413	23	2.3	15,16, 21-23,26	1.6	17	2.1	0.7
Fort Smith, Ark.	351	22	9.4	11	2.1	5	4.3	7.3
Dardanelle, Ark.	256	21	11.5	9	2.2	5,6	4.9	9.3
Little Rock, Ark.	176	23	12.5	11	3.6	5,6	6.7	8.9
White River.								
Newport, Ark	150	26	15.8	13,14	3.3	7	8.5	12.5
Yazoo River.								
Yazoo City, Miss.	80	25	14.4	28	0.2	7,8	5.9	14.2
Red River.								
Arthur City, Tex.[11]	688	27	12.0	9,10	5.3	28	7.0	6.7
Fulton, Ark.	565	28	17.4	12	5.9	8	9.3	11.5
Shreveport, La	449	29	10.7	15	3.8	11,12	6.1	6.9
Alexandria, La	139	33	8.2	18	2.9	12	5.0	5.3
Ouachita River.								
Camden, Ark	340	39	18.2	12	5.9	6	10.1	12.3
Monroe, La	100	40	11.6	28	4.4	7-9	7.8	7.2
Atchafalaya River.								
Melville, La.	100*	31	25.6	28	18.0	15,16	21.3	7.6
Susquehanna River.								
Wilkesbarre, Pa.	178	14	11.2	24	1.8	2	7.6	9.4
Harrisburg, Pa.	70	17	14.0	9	4.8	7,8	5.6	9.2
W. Br. of Susquehanna.								
Williamsport, Pa.	35	20	9.8	23	2.8	2,3	4.8	7.0
Juniata River.								
Huntingdon, Pa.[12]	80	24	6.3	22	4.2	25	4.9	2.1
Potomac River.								
Harpers Ferry, W. Va.	170	16	7.1	24	2.0	8,9	3.5	5.1
James River.								
Lynchburg, Va.[4]	257	18	7.7	14	0.9	6,7	2.9	6.8
Richmond, Va.[4]	110	12	5.7	24	— 1.4	11	1.3	7.1
Roanoke River.								
Weldon, N. C.	90	40	30.8	15	7.7	3	14.8	23.1
Cape Fear River.								
Fayetteville, N. C.	100	38	36.0	14	4.4	4	15.1	31.6
Lumber River.								
Fairbluff, N. C.	10	6	6.0	18-20	3.4	9	4.8	2.6
Edisto River.								
Edisto, S. C.	75	6	5.6	22,23	3.5	6	4.7	2.1
Pedee River.								
Cheraw, S. C.	145	27	28.8	15	1.3	4	10.0	27.5
Black River.								
Kingstree, S. C.	60	12	8.8	28	4.1	8-10	5.8	4.7
Lynch Creek.								
Effingham, S. C.	35	12	13.0	20	4.1	7	8.4	8.9
Santee River.								
St. Stephens, S. C.	50	12	12.4	22,23	2.6	6	7.1	9.8
Congaree River.								
Columbia, S. C.	37	15	16.5	14	0.2	3,4	4.3	16.3
Wateree River.								
Camden, S. C.	45	24	28.0	15	3.3	4	11.7	24.7
Waccamaw River.								
Conway, S. C.	40	7	6.4	27	5.8	10	6.2	0.6
Savannah River.								
Calhoun Falls, S. C.	347	.....	19.4	14	2.7	4	5.2	16.7
Augusta, Ga.	268	32	32.7	14	6.3	4	14.0	26.4
Broad River.								
Carlton, Ga	30	.....	22.2	13	2.3	1-4	4.9	19.9
Flint River.								
Albany, Ga	80	20	29.0	18,19	1.8	1	13.6	27.2
Chattahoochee River.								
Westpoint, Ga	239	20	19.5	14	2.4	3	6.7	17.1
Ocmulgee River.								
Macon, Ga.	125	20	21.7	14	1.5	2-4	8.2	20.2
Oconee River.								
Dublin, Ga.	60	30	24.9	17	1.6	2-4	10.5	23.3
Coosa River.								
Rome, Ga	225	30	27.2	14	1.6	3	7.9	25.6
Gadsden, Ala	144	18	21.6	15-17	1.8	3,4	9.6	19.8
Alabama River.								
Montgomery, Ala.	265	35	48.6	15	5.0	4	20.9	43.6
Selma, Ala	212	35	48.0	17	3.5	3	23.6	44.5
Tombigbee River.								
Columbus, Miss.	303	33	10.2	13	0.2	3	4.5	10.0
Demopolis, Ala.	155	35	44.4	16	5.0	3	24.9	39.4
Black Warrior River.								
Tuscaloosa, Ala	129	43	48.0	14	5.0	3	21.4	43.0
Columbia River.								
Umatilla, Oreg	270	25	5.0	1	2.0	28	3.3	3.0
The Dalles, Oreg	166	40	8.0	25	4.6	21	6.6	3.4
Willamette River.								
Albany, Oreg	99	20	16.7	23	5.2	6-8	7.4	11.5
Portland, Oreg	10	15	10.4	24	3.9	17	6.3	6.5
Sacramento River.								
Red Bluff, Cal.	241	23	7.7	21	1.8	15-17	3.4	5.9
Sacramento, Cal.	70	29	21.4	4	15.5	20	17.9	5.9

* Frozen.

[1] Frozen for 24 days. [2] Frozen for 7 days. [3] Frozen for 8 days. [4] Frozen for 3 days. [5] Frozen for 19 days. [6] Frozen for 11 days. [7] Frozen for 5 days. [8] Frozen for 15 days. [9] Frozen for 4 days. [10] Frozen for 1 day. [11] Record for 22 days. [12] Frozen for 13 days.

Chart I.—Tracks of Centers of High Areas, February, 1900.

Chart I. Tracks of Centers of High Areas. February, 1900.

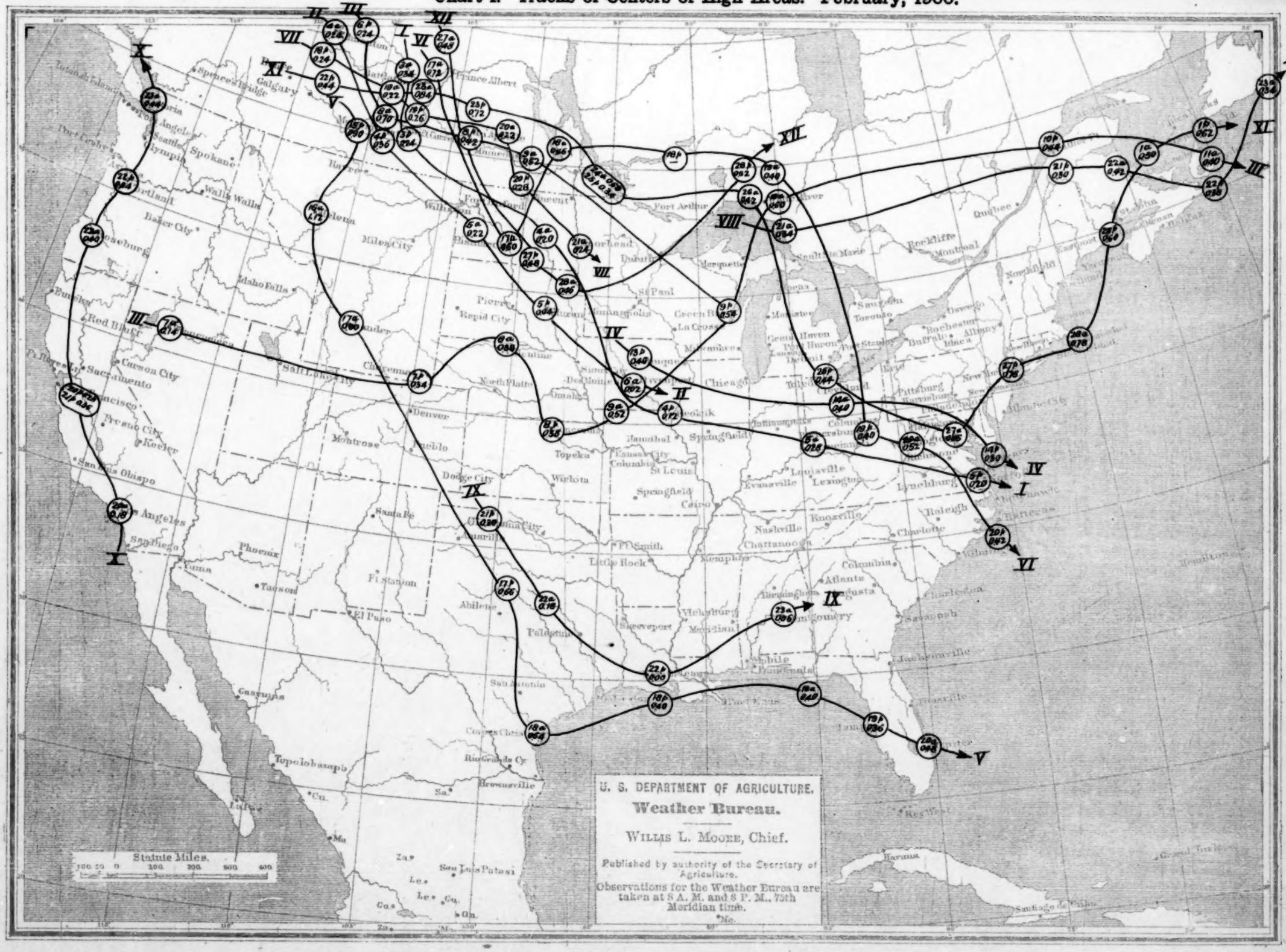
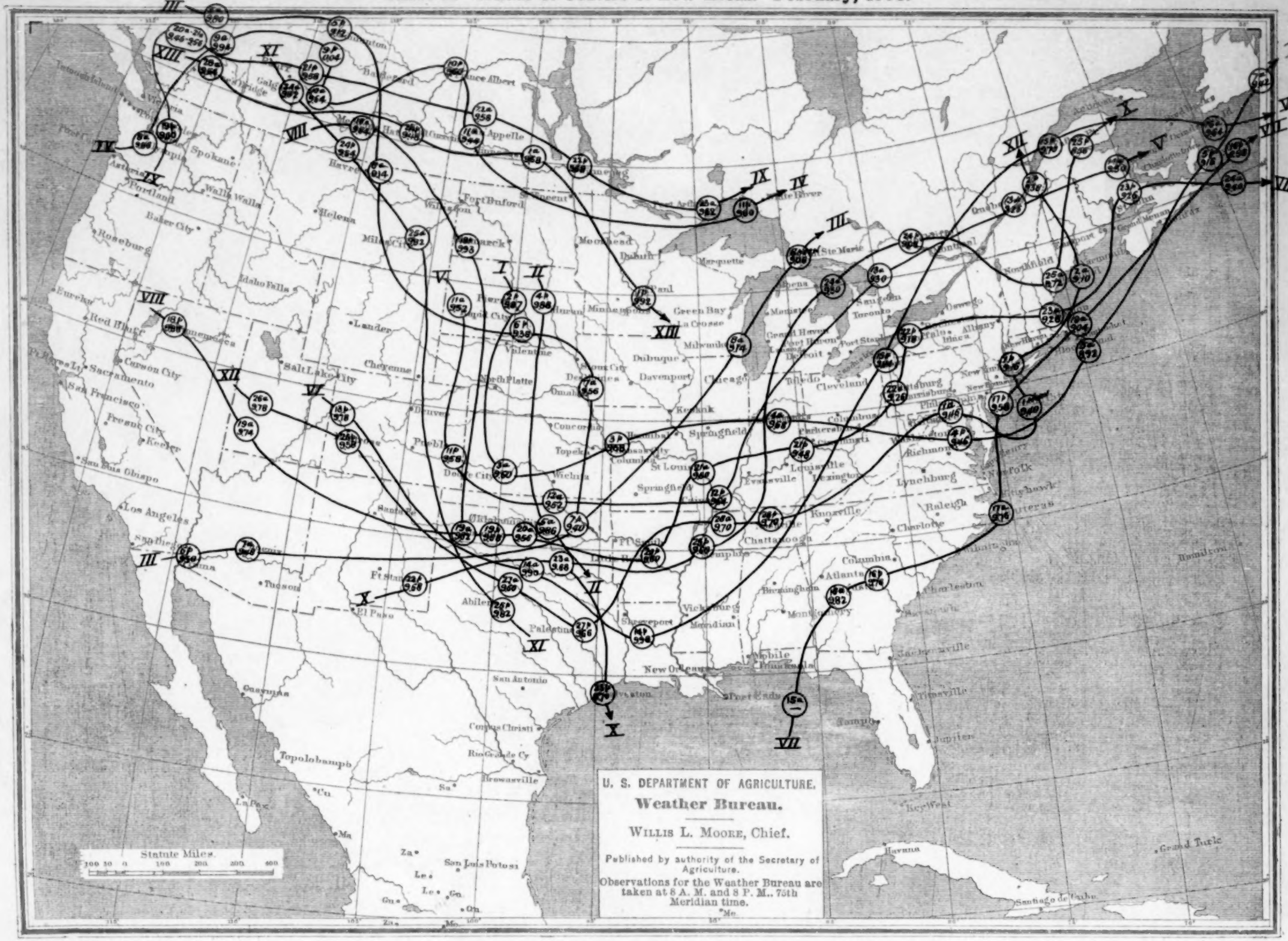

Statute Miles.
100 50 0 100 200 300 400
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
WILLIS L. MOORE, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A. M. and 8 P. M., 75th Meridian time.

Chart II. Tracks of Centers of Low Areas. February, 1900.


U. S. DEPARTMENT OF AGRICULTURE.
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Statute Miles.
100 50 0 100 200 300 400

Chart III. Total Precipitation. February, 1900.

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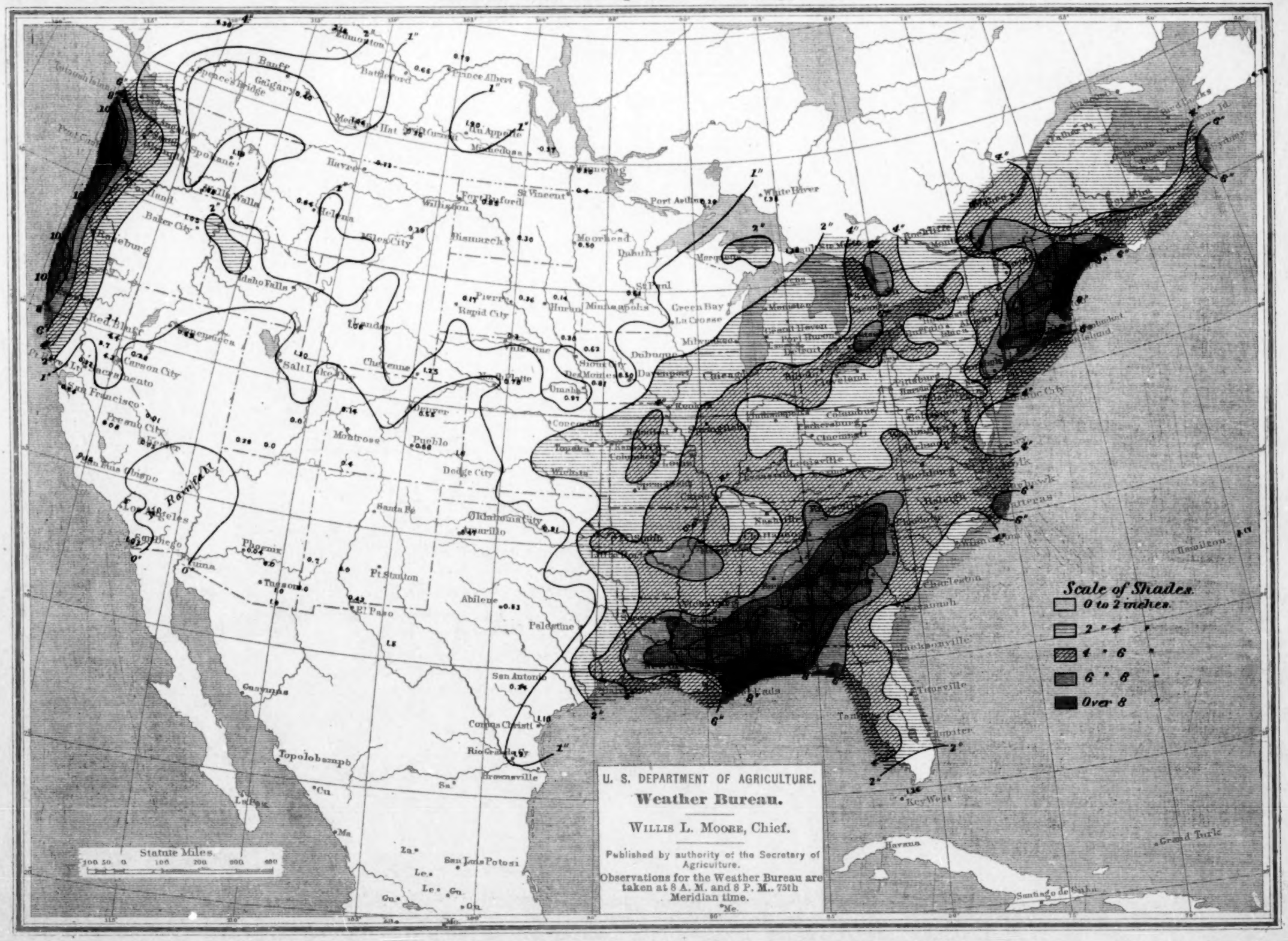


Chart IV. Sea-Level Pressure and Temperature; Resultant Surface Winds. February, 1900.

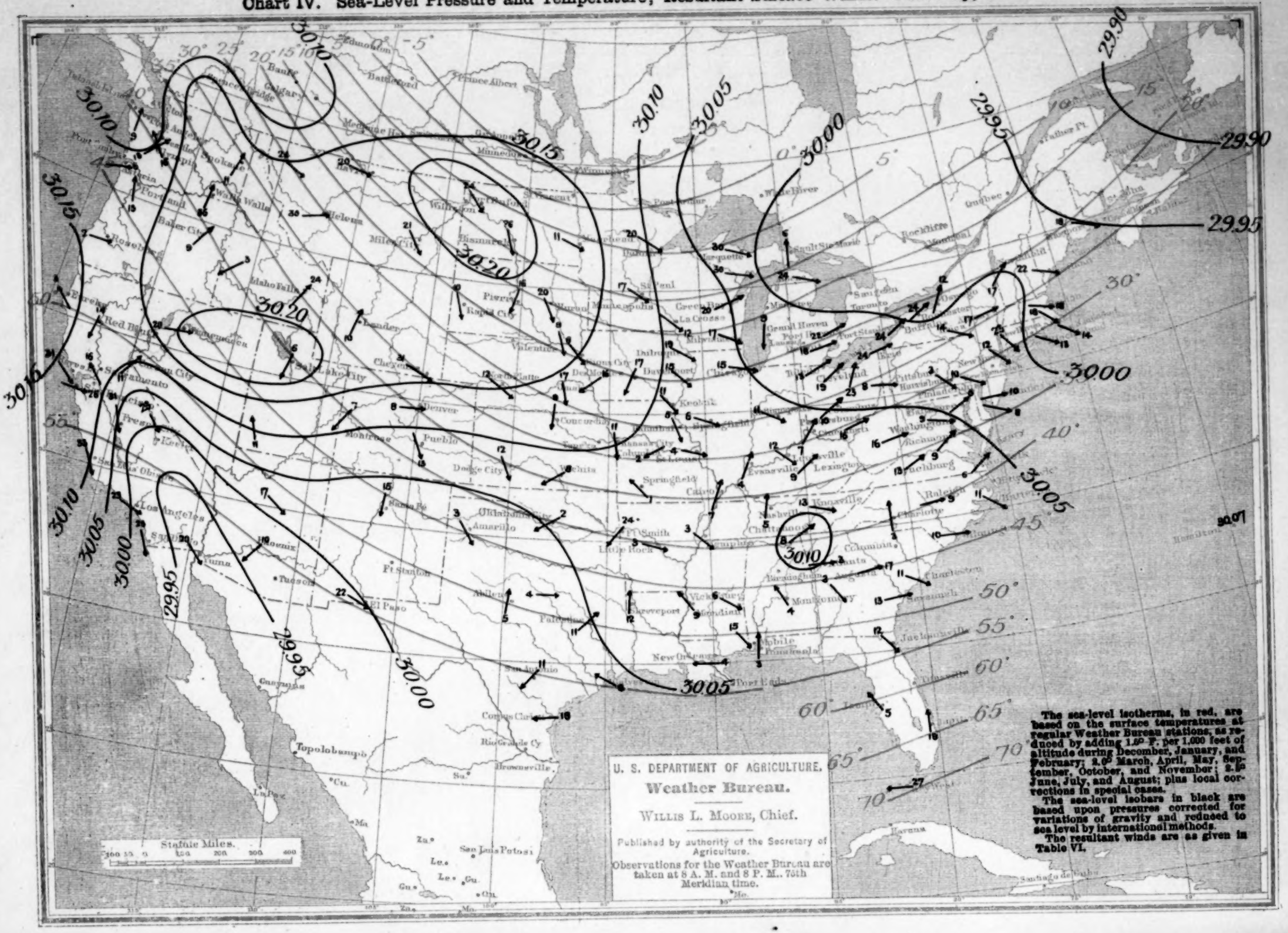


Chart V. Hydrographs for Seven Principal Rivers of the United States. February, 1900.

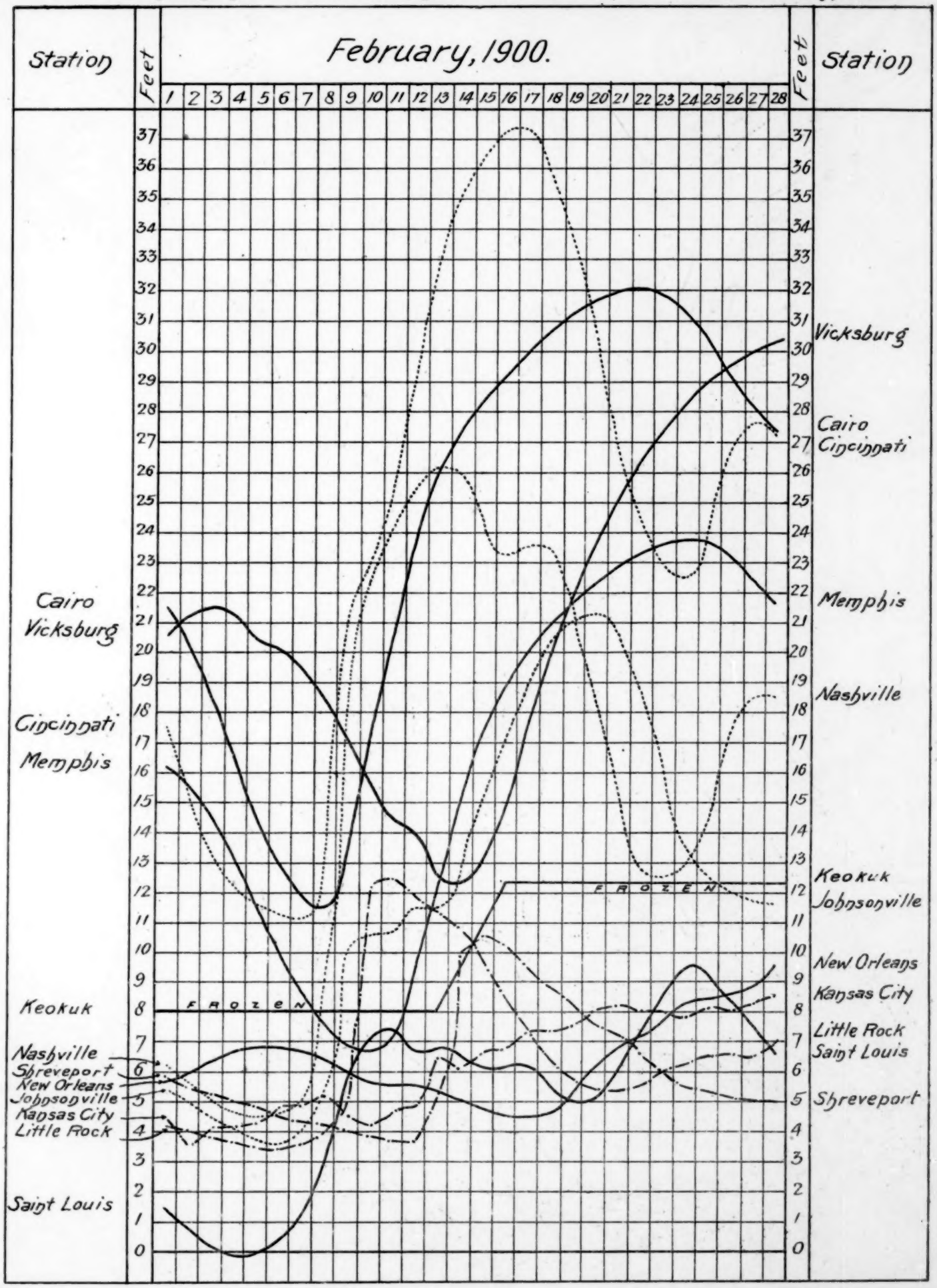
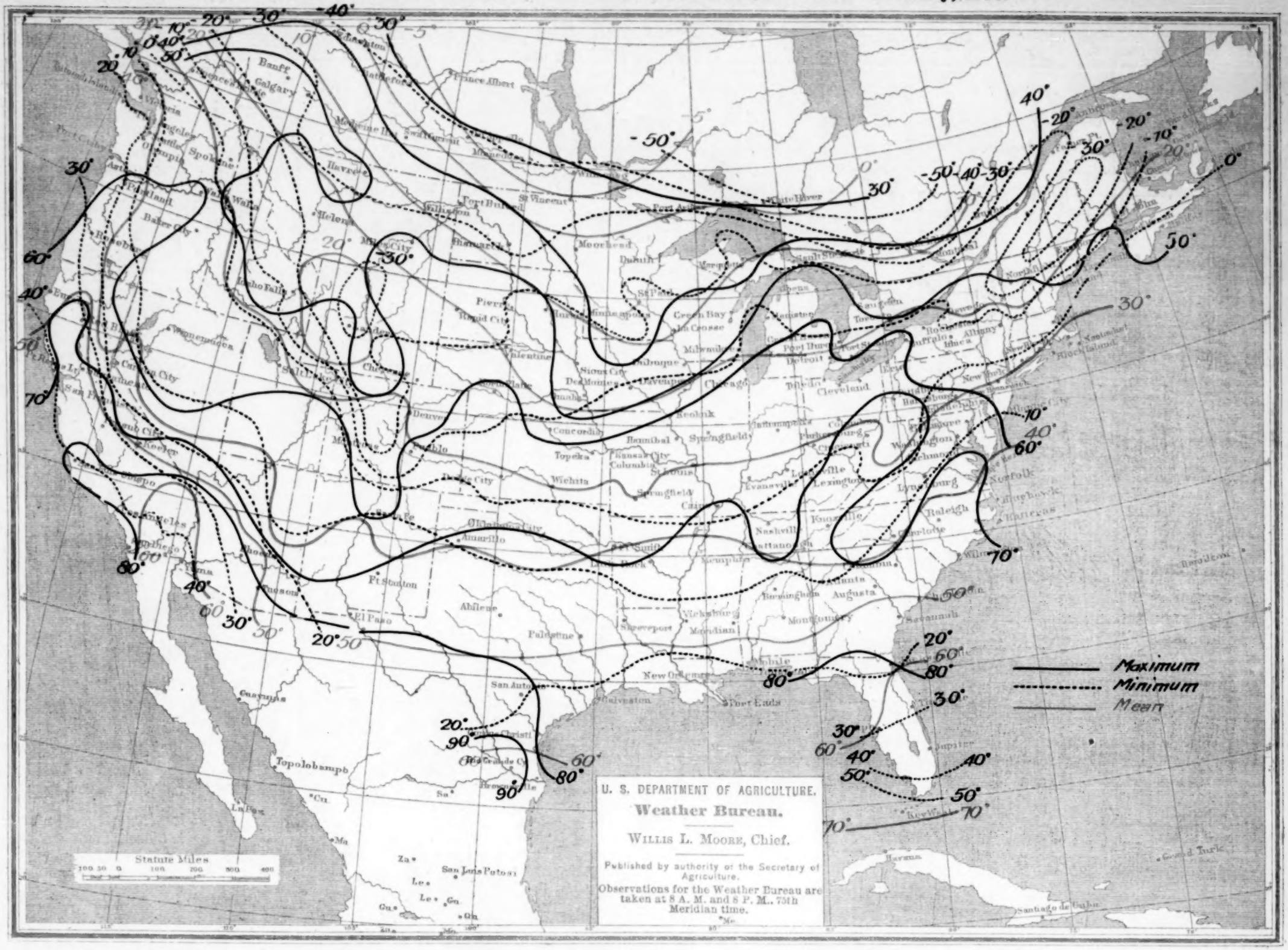


Chart VI. Surface Temperatures; Maximum, Minimum, and Mean. February, 1900.


Maximum
Minimum
Mean
Statute Miles
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Weather Bureau.
WILLIS L. MOORE, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A. M. and 8 P. M., 75th Meridian time.

Chart VII. Percentage of Sunshine. February, 1900.

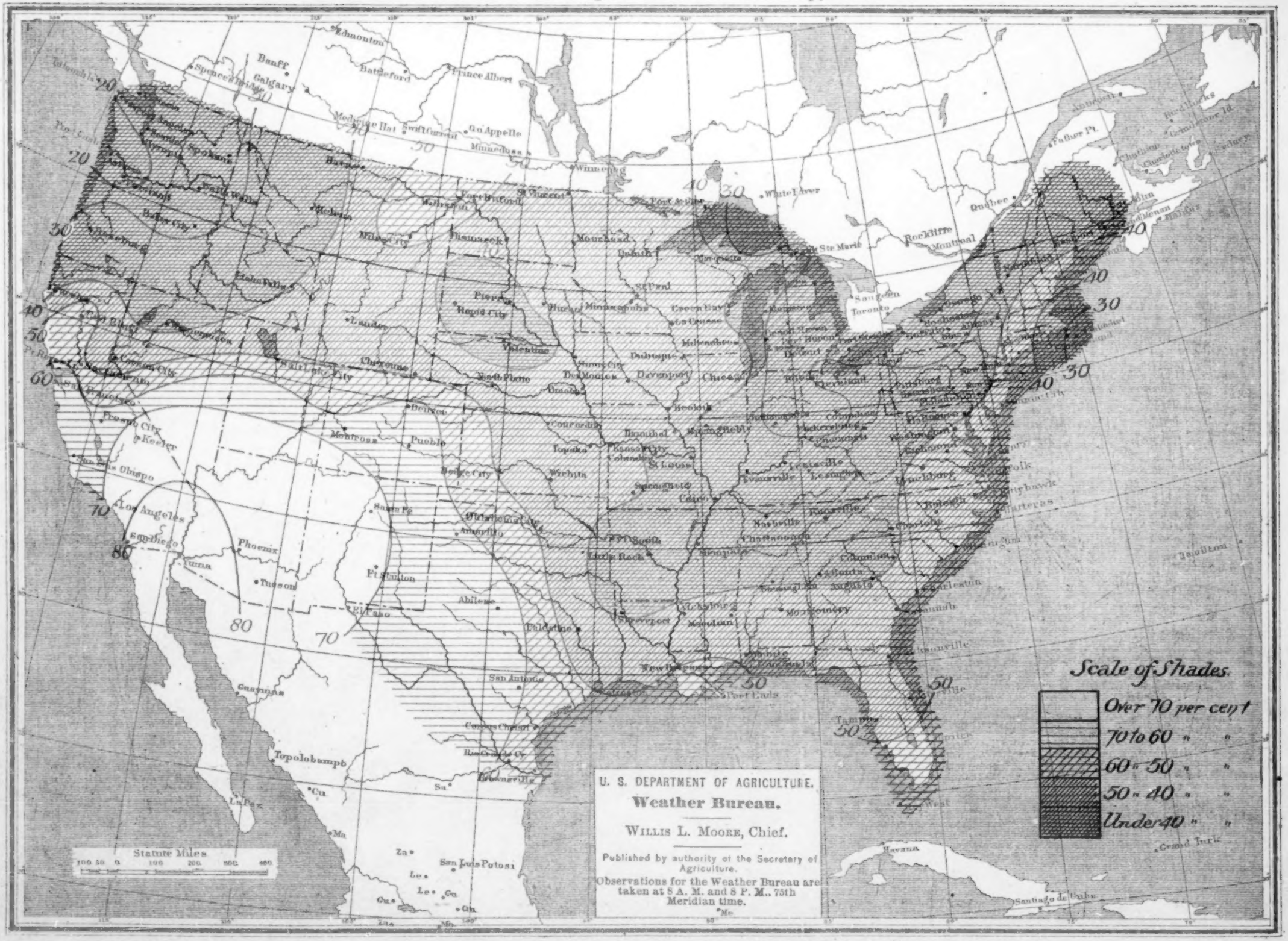

Scale of Shades.
Over 70 per cent
70 to 60 " "
60 " 50 " "
50 " 40 " "
Under 40 " "
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
WILLIS L. MOORE, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A. M. and 8 P. M., 75th Meridian time.
Statute Miles
100 50 0 100 200 300 400

Chart VIII. Total Snowfall for February, 1900.

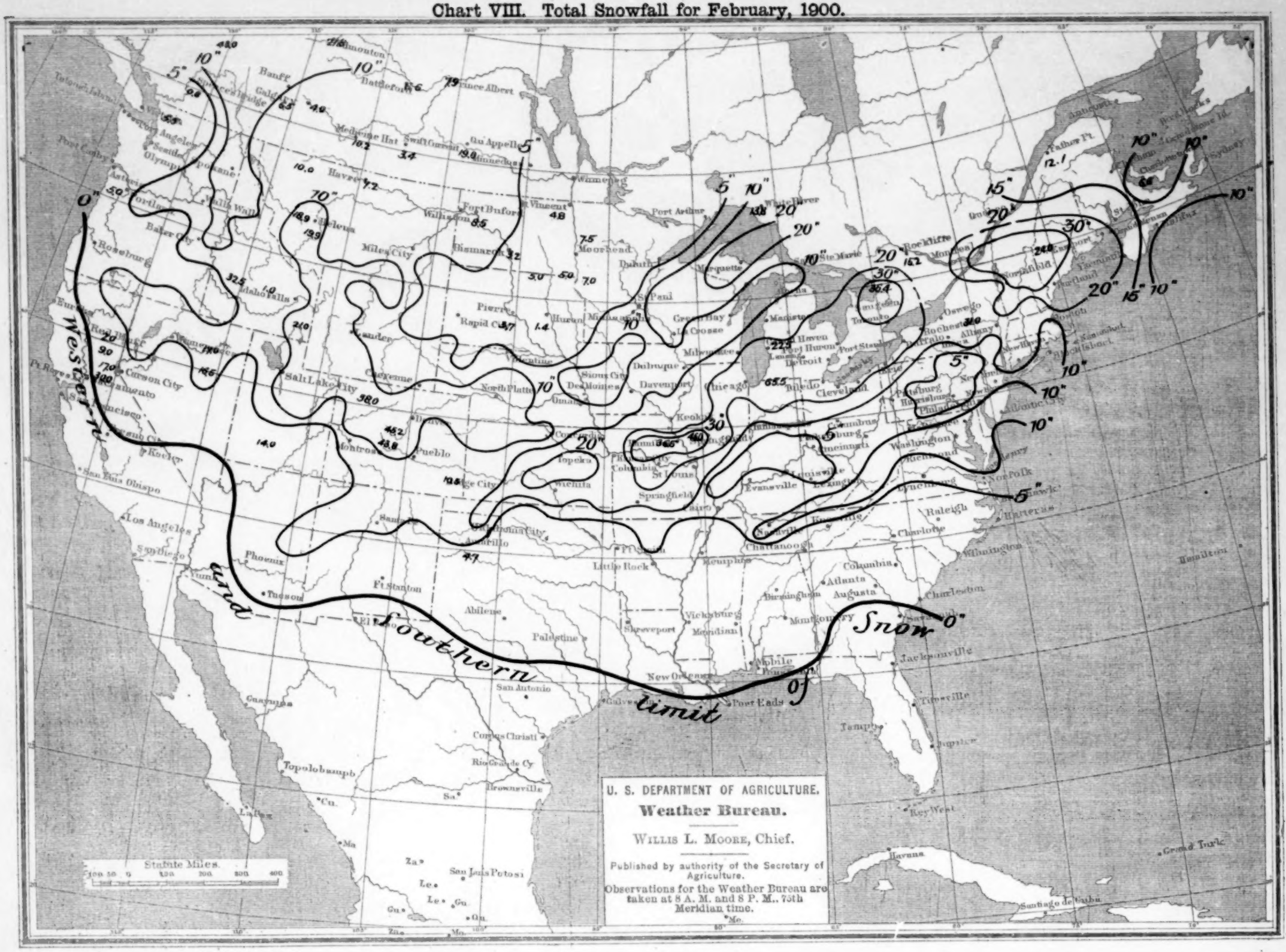


Chart IX. Snow on Ground on February 28, 1900.

Chart IX. Snow on Ground on February 28, 1900.

0"
5"
10"
20"
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
WILLIS L. MOORE, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A. M. and 8 P. M., 75th Meridian time.
Statute Miles.
100 50 0 100 200 300 400

Chart X. West Indian Monthly Isobars, Isotherms, and Resultant Winds. February, 1900.

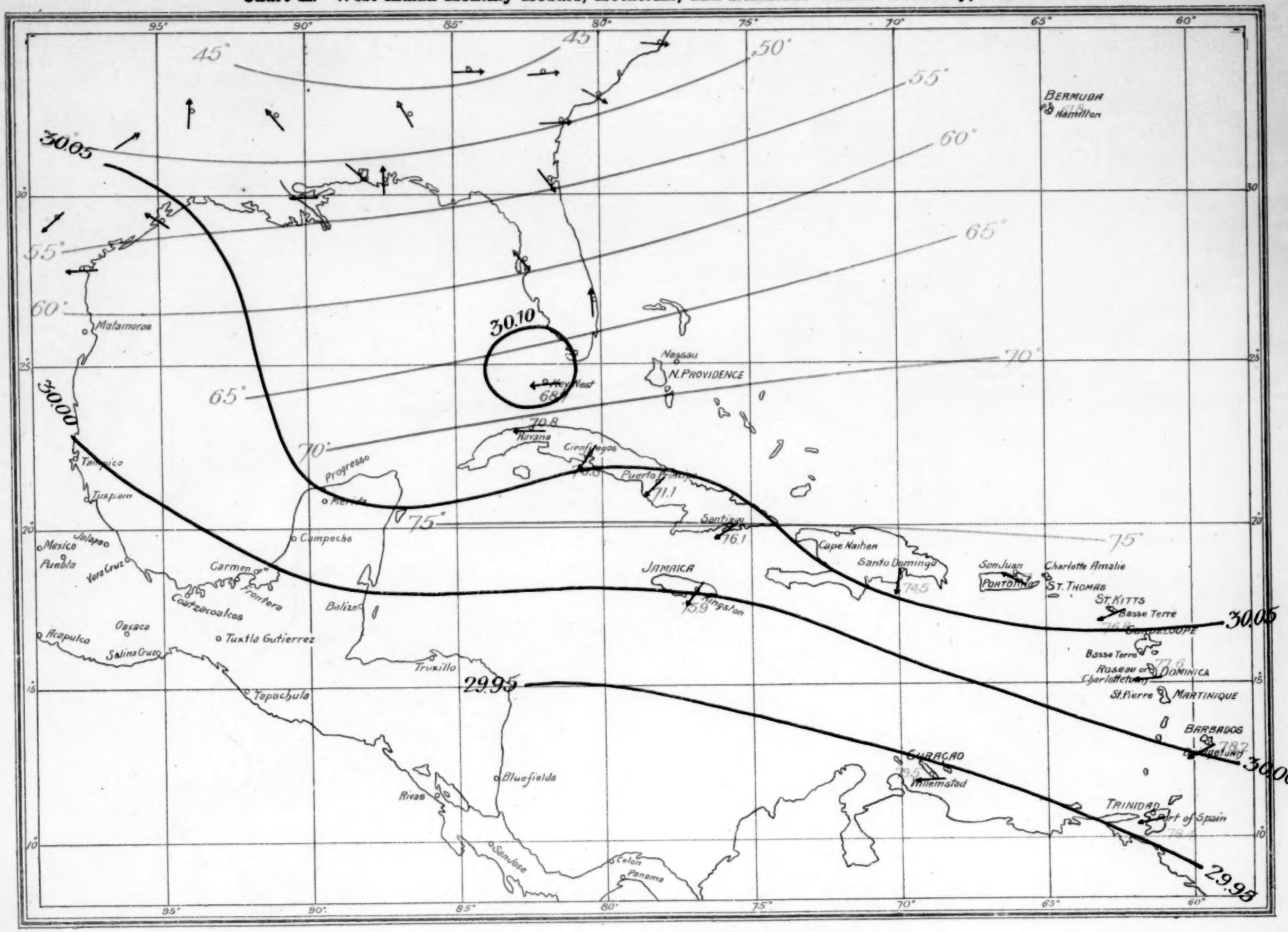
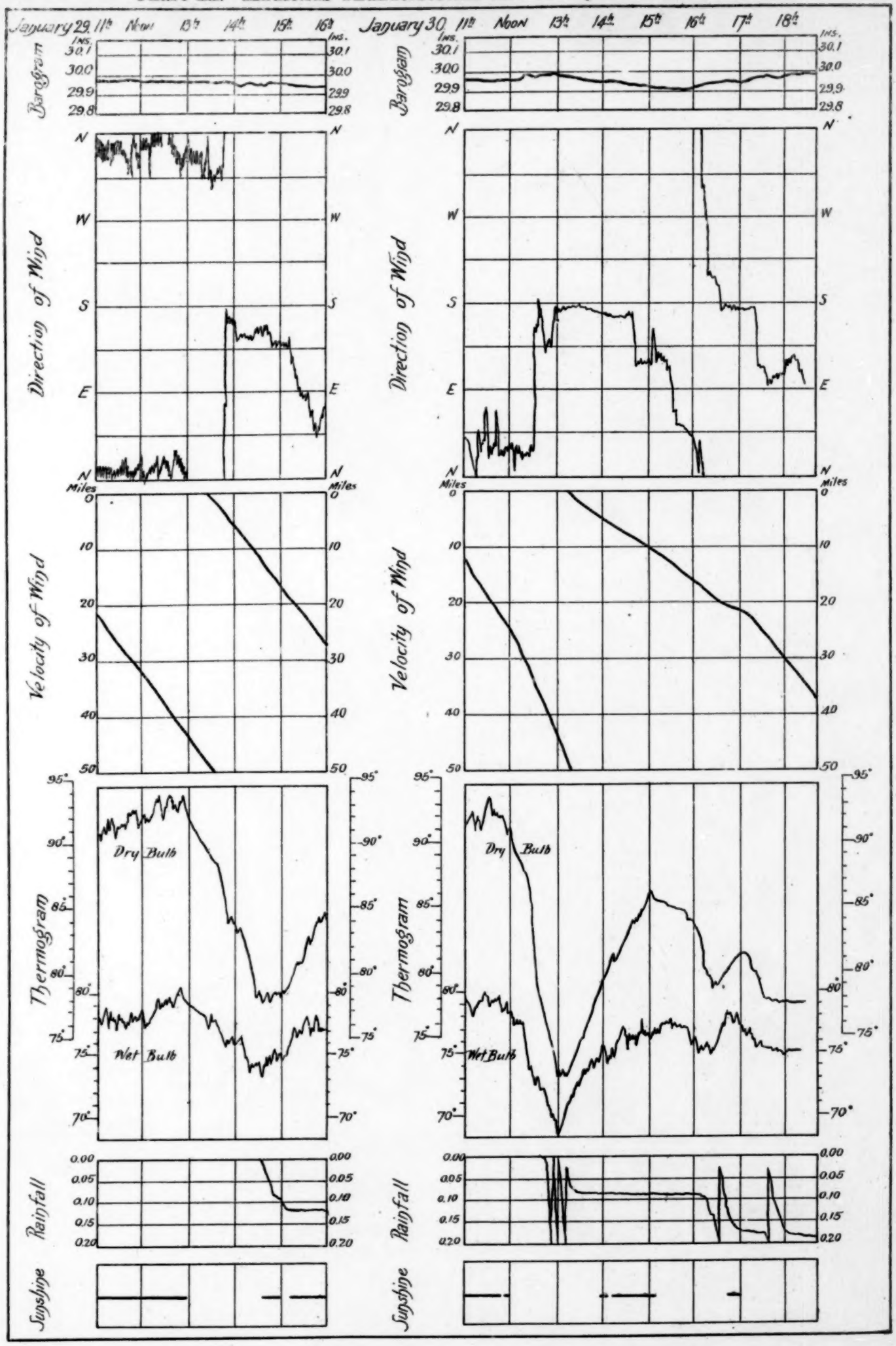


Chart XI. Mauritius Thunderstorms on January 29 and 30, 1900.


January 29 11h Noon 13h 14h 15h 16h
January 30 11h Noon 13h 14h 15h 16h 17h 18h
Barogram
Ins. 30.1 30.0 29.9 29.8
Direction of Wind
N W S E N
Velocity of Wind
Miles 0 10 20 30 40 50
Thermogram
Dry Bulb
Wet Bulb
95° 90° 85° 80° 75° 70°
Rainfall
0.00 0.05 0.10 0.15 0.20
Sunshine

Marvin's Anemometer Tests.

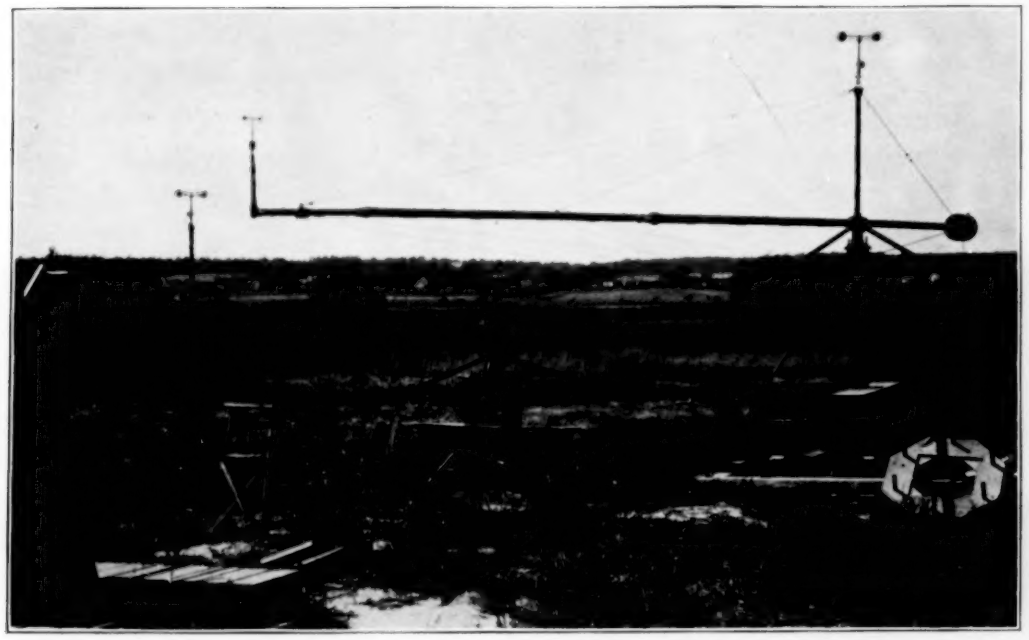


FIG. 1.—The whirling machine and driving belt.

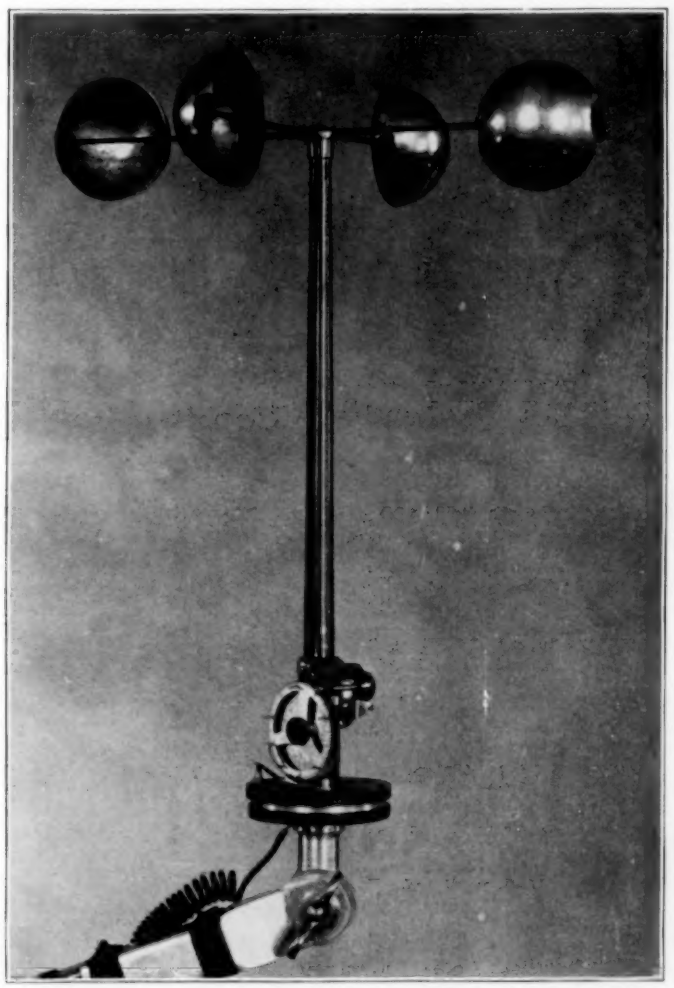


FIG. 2.—Small anemometer attached to spar above top of the kite.